



*Final  
Revision 0*

## INSTALLATION RESTORATION PROGRAM

Final  
Long-Term Groundwater Monitoring  
Report: April 2001  
Volume 1

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### Wright-Patterson Air Force Base Long-Term Monitoring Program

Wright-Patterson Air Force Base  
88th Air Base Wing  
Office of Environmental Management



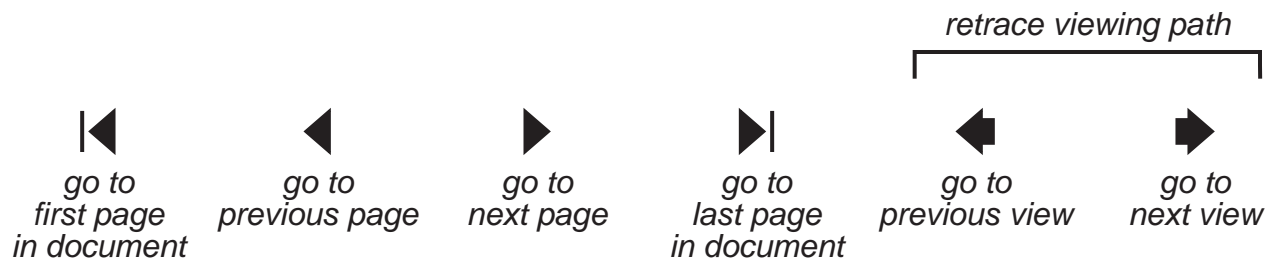
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*March 6, 2002*

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**FINAL**

**LONG-TERM GROUNDWATER MONITORING**

**REPORT: APRIL 2001**

**LONG-TERM MONITORING PROGRAM**

**Submitted to:**

**Wright-Patterson Air Force Base  
88th Air Base Wing  
Office of Environmental Management  
Wright-Patterson Air Force Base, Ohio**

**Prepared by:**

**IT Corporation  
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**March 6, 2002**

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## List of Acronyms

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BMP	Basewide Monitoring Plan
BS	Burial Site
BTEX	benzene, toluene, ethylbenzene and xylene (total)
C	Celsius
CGI	combustible gas indicator
CHP	Central Heating Plant
CofC	Chain-of-Custody
COCs	chemicals of concern
1,2-DCA	1,2-Dichloroethane
1,2-DCE	1,2-Dichloroethene
DO	dissolved oxygen
EE/CA	Engineering Evaluation/Cost Analysis
EFDZ	Earthfill Disposal Zone
ES	Engineering-Science, Inc.
ESD	Explanation of Significant Differences
FAA-A	Further Action Area-A
FAA-B	Further Action Area-B
FP	Field Procedure
FS	Feasibility Study
FTA	Fire Training Area
GBT	gas barrier trench
GWOU	Groundwater Operable Unit
IT	IT Corporation
LEL	lower explosive limit
LFG	landfill gas
LF	Landfill
LTM	long-term monitoring
MCL	Maximum Contaminant Level
MS	matrix spike
MSD	matrix spike duplicate
µg/L	micrograms per liter
mg/L	milligrams per liter
O&M	Operation and Maintenance
ORP	oxidation-reduction potential
OSL	off-site laboratory
OU	operable unit
PID	photoionization detector
POL	petroleum, oil and lubricant
POTW	publicly owned treatment works

## List of Acronyms (continued)

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PWP	project work plan
QA	quality assurance
QC	quality control
RG	remediation goal
RI	Remedial Investigation
ROD	Record of Decision
SOW	Statement of Work
SP	spill site
TVH	total volatile hydrocarbon
TCE	trichloroethene
SCOU	Source Control Operable Unit
STL	Severn Trent Laboratories
UEL	upper explosive limit
USEPA	U.S. Environmental Protection Agency
VOA	volatile organic aromatics
VOC	volatile organic compound
WPAFB	Wright-Patterson Air Force Base

## 1.0 Introduction

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This document presents the results of the continuing long-term monitoring (LTM) program quarterly field activities conducted in January 2001 and the quarterly, semiannual and annual, field activities conducted in April 2001 at Wright-Patterson Air Force Base (WPAFB). The continuing quarterly, semiannual and annual LTM program field activities consist of the following tasks:

- Semiannual groundwater monitoring in accordance with the Record of Decision (ROD) at Landfills 8 and 10 [Operable Unit (OU) 1];
- Continued quarterly soil gas and groundwater level monitoring at OU1.
- Continued monthly hydraulic containment monitoring at Landfill 5 (OU5);
- Continued quarterly Operation and Maintenance landfill gas monitoring at Landfills 3, 4, 6, and 7 (OU4);
- Continued semiannual monitoring in accordance with the ROD at Spill Sites 2, 3, and 10 (OU2);
- Continued Basewide LTM program for groundwater removal actions: semiannual volatile organic compounds (VOCs) monitoring; and
- Continued Basewide LTM programs for groundwater removal actions: annual VOCs and metals monitoring.

Each chapter contains a discussion of the various tasks including: the methods of data collection, variances from approved procedures based on field conditions, results of sampling, and an evaluation of the results.

Each of the above tasks are presented in a stand-alone chapter so that it can be extracted from the compendium, all groundwater monitoring tasks are ultimately evaluated together under the Groundwater Operable Unit (GWOU) for all of WPAFB (Chapter 7.0). The GWOU was established under the Basewide Monitoring Plan (BMP) to provide a comprehensive method for monitoring and evaluating the individual source areas (OUs), plume migration and the natural attenuation of contaminants.

The continuing long-term natural attenuation monitoring at OU2 is conducted collectively under the Basewide LTM program and is included in this report (Chapter 5.0).

### **1.1 Purpose and Objectives**

The tasks of the LTM program are performed in accordance with the individual sampling programs that were previously being conducted concurrently at WPAFB. These sampling programs are summarized in the *Long-Term Groundwater Monitoring Report: October 1998* (IT, 1999a).

Data collected as part of the LTM will form a data set to be used to evaluate the trends in the organic and inorganic chemicals of concern (COCs) in groundwater and evaluate the progress of ongoing remedial actions throughout WPAFB. Specific objectives of the LTM program are:

- Provide data to monitor past detections of inorganic COCs above the Maximum Contaminant Levels (MCLs) at WPAFB that do not appear to form congruent contaminant plumes.
- Provide data to monitor areas of WPAFB where groundwater concentrations of VOCs exceed MCLs.
- Provide monitoring data in accordance with the recommended action for Further Action Area-B (FAA-B) (vinyl chloride contaminated site adjacent to the drum storage facility at Building 92, Area B, and east of Spill Site 11) to evaluate current conditions. Sampling will be conducted annually.
- Provide monitoring data to verify the progress of ongoing remedial efforts in accordance with the RODs for OU1 and OU2.
- Provide methane monitoring at OU4 to evaluate the progress of the selected remedy in accordance with the OU4 Landfill Gas Monitoring Technical Memorandum (CH2M HILL, 1998).
- Provide monthly groundwater elevations and semiannual groundwater quality data for monitoring downgradient of OU5 (Further Action Area-A [FAA-A]) to evaluate the horizontal and vertical groundwater flow and capture zones and, ultimately, the effectiveness of the extraction system.

### **1.2 Basewide Monitoring Program**

Numerous groundwater contamination investigations have been undertaken at WPAFB. Table 2-1 of the *Final BMP Engineering Evaluation/Cost Analysis* (EE/CA) (IT, 1999b) provides a synopsis of the environmental studies performed on the Base as a whole and those

performed on specific OUs. Expanded discussions of the results of studies are provided in other documents, which delineate the extent of contamination at the different OUs. As such, the COCs sources and likely pathways for contaminant migration are well defined.

The EE/CA was prepared for the proposed groundwater removal actions under the BMP. The EE/CA evaluated reasonable removal action alternatives for the GWOU that will provide protection of human health and environment by mitigating groundwater contamination. Based on a comparative evaluation of the alternatives presented in the EE/CA and/or GWOU ROD, the following actions were recommended:

- For Area A, FAA-A, continue current groundwater treatment, discharge to surface water, monitoring, and restrictive regulations. Provide monthly groundwater elevations and semi-annual groundwater quality data for monitoring downgradient of OU5 (FAA-A) to evaluate the horizontal and vertical groundwater flow and capture zones and, ultimately, the effectiveness of the extraction system. A Treatability Study consisting of a chemical oxidation pilot-test at EW-1 was conducted during the spring of 2000.
- For Area B, FAA-B, continue annual groundwater monitoring to monitor for the potential migration of VOC contamination. A Treatability Study consisting of a chemical oxidation pilot-test at EW-1 was conducted during the fall of 1999. It was determined that the source area was above the water table and could not be remediated with Fenton's Reagent. Soil excavation was recommended. In October 2000, approximately 200 cubic yards of soil, located within the fence line of Facility 92, was removed. Additional long-term monitoring will be implemented to observe the effects of the remedial action.

In addition to the alternatives presented for the two further action areas (FAA-A and FAA-B) presented above, long-term monitoring was recommended for other areas on Base:

- Areas with existing remedies in place (OU1 and OU2);
- Areas that exceed MCLs for organic COCs, but do not exceed the target risk range;
- Areas that exceed a cumulative cancer risk of  $1 \times 10^{-4}$  or a hazard index of 1 for organic COCs, but do not exceed MCLs; and
- Areas exceeding MCLs and background concentrations for inorganic COCs.

The LTM program will be conducted in these areas to: (1) confirm that the conclusions drawn in the EE/CA are valid; (2) ensure that appropriate actions can be implemented if monitoring

indicates that organic COCs are migrating; and (3) confirm that the stated remedial action objectives are met.

The Baseline sampling round for the Basewide LTM was conducted in April 1998 under the BMP and is considered the GWOU baseline data set for VOCs and metals. Data from subsequent sampling rounds will be compared to the LTM baseline data to establish trends. Data from the baseline sampling event was presented in the *Long-Term Groundwater Monitoring Baseline Report* (IT, 1999c). The wells selected for the baseline sampling were recommended in the EE/CA but excluded the wells that were being monitored under existing sampling programs associated with remedial actions in OU1, OU2, and OU5.

### **1.3 WPAFB Location**

WPAFB is located in southwestern Ohio between the cities of Dayton and Fairborn and occupies portions of Greene and Montgomery Counties (Figure 1-1). WPAFB is subdivided into three areas: A, B, and C (Figure 1-2). The installation was formed as a consolidation of two bases: Wright Field (Area B) and Patterson Field (Areas A and C). Area B is separated from Areas A and C by State Route 444 and the ConRail Corporation railroad tracks. Areas A and C encompasses approximately 5,711 acres (Figure 1-3) and Area B encompasses approximately 2,800 acres (Figure 1-4).

### **1.4 WPAFB GWOU Background Information**

WPAFB has grouped all confirmed or suspected sites requiring investigation and characterization into 11 geographically based source operable units (designated OUs 1 through 11) and one groundwater operable unit (Figures 1-3 and 1-4). Groundwater, surface water, and sediment contaminants from each of the 11 OUs and groundwater contaminants that are not attributable to a known source on WPAFB are combined to form the GWOU for removal activities under the BMP. Because of groundwater movement patterns under WPAFB, contaminants from one source area may be transported through others, commingling contaminants and finally moving into remote portions of the Base. The BMP was established to evaluate contaminant movement, assess risks posed to human health and the environment by exposure to the contaminants, and design a remedy for groundwater throughout the Base (IT, 1999b).

The GWOU is defined by three boundaries: an upper boundary, a lower boundary and horizontal boundaries. The upper boundary consists of the water table surface, including the vertical zone

of seasonal water table fluctuations. The lower boundary is the first occurrence of bedrock, which is at the base of the alluvial aquifer. The horizontal boundaries are within the confines of WPAFB and also include the surrounding areas effected by off-site migration of contaminants from WPAFB.

### ***1.5 Organization of the LTM April 2001 Report***

Monitoring procedures, results, and data evaluation of the January and April 2001 Basewide LTM program sampling are presented in the following chapters.

- Chapter 2 describes the quarterly and semiannual sampling conducted in accordance with the ROD for Landfills 8 and 10 (OU1). Activities conducted as part of the OU1 ROD requirements include quarterly explosive gas and hydraulic containment monitoring, and semiannual monitoring well sampling. Presented in this section is: a summary of the sampling results; a discussion of explosive gas monitoring results; a description of the hydraulic containment monitoring results; and an evaluation of the performance of the OU1 remediation system.
- Chapter 3 describes the hydraulic containment monitoring being conducted at OU5. This section presents the monthly water level elevations and provides an evaluation of the extraction system and hydraulic flow conditions at OU5.
- Chapter 4 describes the landfill gas monitoring activities at OU4 and includes a summary of the scope of work and site description/history, monitoring procedures, and monitoring results.
- Chapter 5 presents the field activities and analytical results from the semiannual sampling conducted at OU2. Field activities at OU2 consisted of soil gas monitoring and groundwater sampling.
- Chapter 6 describes the Basewide LTM activities. Included in this section is a summary of the semiannual and annual sampling results, and a presentation of the groundwater monitoring results.
- Chapter 7 presents a overview of all groundwater monitoring activities currently being conducted at WPAFB, including the LTM program described above and monitoring of the natural attenuation of petroleum hydrocarbons being conducted at OU2.
- Chapter 8 provides a list of the references used throughout the document.

## **2.0 Record of Decision (ROD) Sampling at Landfills 8 and 10 (OU1)**

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Chapter 2 presents the results of the January quarterly and April semiannual long-term groundwater monitoring for Operable Unit 1 (OU1) at WPAFB, Ohio.

### **2.1 Introduction**

The Long-Term Monitoring (LTM) program was initiated at OU1 in accordance with the Record of Decision (ROD) for Source Control Operable Unit - Landfills 8 and 10 (LFs 8 and 10) (WPAFB, 1993) and the OU1 Final Operations and Maintenance Plan (O&M Plan) (Kelchner, 1997). The information presented in this report is the result of fieldwork conducted as part of the O&M Plan and Performance Monitoring. The site location and description of LFs 8 and 10 are summarized in the Long-Term Groundwater Monitoring Report: October 1998 (IT, 1999a). The landfill site vicinity is depicted in Figure 2-1. Sampling frequency and schedule for OU1 wells are defined in Table A-1 of Appendix A. Figures 2-2 and 2-3 present the locations of the selected perimeter monitoring wells at LFs 8 and 10, respectively that were selected for semiannual sampling.

The OU1 compliance monitoring program includes quarterly monitoring of explosive gas (methane) and groundwater levels and, annual and semiannual groundwater sampling. The objective of the groundwater sampling is to confirm that contaminants have not migrated beyond the extent detected during the remedial investigations and to determine whether analytical compliance levels set forth in the ROD have been achieved. The objective of the explosive gas monitoring is to determine whether the landfill gas collection and treatment system has established a capture zone that extends outside the landfill boundaries to prevent migration of explosive gas beyond the landfill boundaries. The objective of monitoring groundwater levels at LFs 8 and 10 is to evaluate the effectiveness of the leachate extraction systems in providing hydraulic containment to prevent the migration of contamination beyond the boundaries of the landfills. Figure 2-4 presents a schematic of the leachate collection system pumps. Overall, data collected as part of the OU1 LTM program will form a data set to be used to evaluate the progress of the ongoing remedial efforts at OU1 and determine whether the selected remedy identified in the ROD is protective of human health and the environment.

The field activities discussed in the following sections were conducted in accordance with the task Statement of Work (SOW) (WPAFB, 1998) and the O&M Plan for LFs 8 and 10 (Kelchner, 1997). The exception to the activities presented in the O&M Plan was the quarterly sampling of

the leachate extraction wells. The OU1 sampling program was revised for the October 2000 sampling event per the Draft Amendment to the OU1 System Performance Monitoring Plan (IT, pending). Revisions to the program include the deletion of the quarterly extraction well sampling and the deletion of the extraction wells from the annual sampling programs. The quarterly sampling program has been replaced with the semiannual sampling of selected downgradient monitoring wells in accordance with Ohio Administrative Code (OAC) 3745-27-10. The semiannual monitoring well network is a subset of the annual monitoring well network. Table A-1 in Appendix A has been revised to reflect the new monitoring well network. Monitoring procedures and results are presented in the sections below.

In addition, to comply with the conditions specified in the City of Fairborn sewer discharge permit, quarterly sampling of the discharge line of the leachate collection system was conducted in January and April.

## ***2.2. OU1 Semiannual Remedial Action Sampling***

The semiannual OU1 ROD compliance sampling event was conducted during the reporting period of November 2000 through April 2001. This sampling event was conducted from April 23 through April 26, 2001. Samples were collected in accordance with the procedures presented in Section 6.3.2 of the OU1 O&M Plan and were analyzed for VOCs and total metals.

The analytical parameters, collection frequency, and sample handling criteria for the OU1 annual and semiannual sampling events are presented in Table 2-1.

Following sampling and when sufficient water was available, the ending field parameters of temperature, pH, specific conductivity, dissolved oxygen, and turbidity were measured using a Horiba U-10 water quality meter. Oxidation-reduction potential (ORP) was monitored using an Orion® Model 250 portable meter. Ending parameters were logged in the field logbooks and sample collection forms. OU1 field data forms including sample collection forms (Appendix B-1) are presented in Appendix B. Table 2-2 presents the ending field parameters for the monitoring wells sampled at LFs 8 and 10.

### **2.2.1 Groundwater Sampling Procedures**

For the April 2001 semiannual sampling event, OU1 groundwater monitoring wells were purged and sampled in accordance with the addendum to Field Procedure (FP) 5-6 (ES, 1990b), using the micropurge low flow-rate technique. Micropurging has been selected for sampling because the low flow rates that are required to maintain a constant dynamic water level draw water from directly within the screened interval of the well where the pump inlet is positioned. This eliminates the purging of the entire stagnant water column and, therefore, generates a minimal amount of wastewater to be disposed.

Monitoring wells were purged and sampled with either dedicated bladder (pneumatic) pumps or by hand bailing. Wells with insufficient water columns for dedicated pumps were hand bailed with a Teflon<sup>®</sup> bailer.

All sampling pumps used to purge the wells are 1.66 inches in diameter and 44 inches in length. Pumps are constructed of stainless steel bodies with Teflon<sup>®</sup> internal bladders. The bladder pumps in the wells were positioned in the lower portion of the screened interval and pumped at sufficiently low flow rates to maintain water levels with only minimal drawdown.

Purge water was containerized and transported to the leachate collection sump for discharge into the City of Fairborn publicly owned treatment works (POTW) via a sanitary sewer.

### **2.2.2 Well Purging: Micropurge Pumping Method**

Prior to the commencement of monitoring well purging, the background and wellhead area at each location was screened with a PID to monitor for the presence of airborne VOCs. After VOC screening, static water levels were measured from the top of the inner casing to the nearest 0.01 foot and recorded. Monitoring wells were purged with dedicated pneumatic pumps using the micropurge method prior to collecting groundwater samples. A minimum purge volume of two pump and two tubing volumes were removed from the well prior to the measurement of the first field parameters. Groundwater quality was considered representative of the surrounding geologic formation when the field parameters and the pumping water level in the well had stabilized.

### **2.2.3 Well Purging: Bailing Method**

Monitoring wells LF8-MW11B, 02-DM-83S-M and LF10-MW03A had insufficient water for the installation of dedicated pumping systems. These wells were bailed in accordance with FP 5-5 and Section 6.3.1 of the OU1 Final O&M Plan (Kelchner, 1997) using a disposable Teflon<sup>®</sup> bailer.

## **2.3 Sample Collection and Management**

The analytical laboratory provided new and certified clean, volatile organic aromatic (VOA) vials and poly sample containers. Only the VOA vials were prepreserved with acid. Sample preservation, containerization and holding time requirements are presented in Table 2-1. Samples were collected by first filling the VOA vials, then filling the container for metals analysis. Samples for total metals analysis were field checked for the correct pH by pouring a small amount of sample out of the container onto pH paper.

After collection, samples were placed on ice in a cooler and maintained at 4° Celsius (C) until shipment to the laboratory. Generally, samples were shipped the day of collection; however, when sampling logistics did not allow shipment on the day of collection, samples were held overnight in a secured sample cooler for shipping the next day. Samples were shipped by overnight carrier to the Severn Trent Laboratory located in North Canton, Ohio for analysis following methods specified in the OU1 O&M Plan (Kelchner, 1997).

### **2.3.1 Field Quality Control Samples**

As a quality check on the field activities (including sample collection, containerization, shipping, and handling), trip blanks, ambient blanks, and field duplicates were collected with specified frequencies following the IRP Project Work Plan (PWP) for Remedial Investigation/Feasibility Study (RI/FS) at WPAFB (ES, 1990b). The frequency with which these samples were taken, and number of such samples, are discussed below. In addition, quality assurance (QA)/quality control (QC) requirements for field analyses are also discussed below. The pumping system for each monitoring well was dedicated and a rinsate blank was not required.

The QA/QC program implemented in the field to ensure that valid data was obtained during sampling was performed in accordance with Section 9.0 of the Quality Assurance Project Plan, Volume 2 of the PWP (ES, 1990b). The analytical QA/QC sampling protocol is summarized as follows:

<u>QA/QC Sample Type</u>	<u>Frequency</u>
Trip Blanks	1 per VOC cooler per shipping day
Field Duplicates	1 every 10 samples
Ambient Blank	1 per sampling event
Matrix Spikes	1 every 20 samples
Matrix Spike Duplicates	1 every 20 samples

Trip blanks were collected daily and were kept with the VOC samples during handling and shipping to the laboratory.

### **2.3.2 Sample Management**

Groundwater samples collected for the OU1 groundwater monitoring were identified, preserved, and handled in accordance with Section 4.0 of Volume 1 and FP 6-12 of Volume 2, Appendix C of the PWP (ES, 1990b). Sample identification consistent with the numbering system presented in Section 2.4.5 of the October 1998 LTM report (IT, 1999a).

Samples were handled in accordance with procedures in Section 5.11.3 of Volume 1 and FP 6-12 of Volume 2, Appendix C of the IRP PWP for RI/FS at WPAFB (ES, 1990b). Sample numbers, descriptions and other pertinent information were entered into field logbooks by the Field Team Leaders. In addition, Chain-of-Custody (CofC) records were completed for each sample. CofC forms contain sample team members, sample numbers, date and time of collection, container types and volumes, preservatives and analytical parameters. CofC records for the OU1 sampling event is presented in Appendix C-2.

### **2.4 Leachate Discharge System Monitoring**

For compliance with the conditions specified in the City of Fairborn sewer discharge permit, one sample per quarter was collected from the discharge line of the Leachate Discharge System. These samples were collected by first purging an initial amount of water from the valve-operated tap in the discharge line to clear any stagnant water within the tap. A minimum purge volume for stabilization was not required as the treatment system is in continuous operation. Purged water was containerized and disposed of in the LTM collection tank. After clearing the stagnant water, samples were collected directly from the discharge line tap. Analytical parameters and handling criteria for the sample collected from the leachate collection system discharge line are presented in Table 2-3.

Samples from the leachate treatment system discharge are given a unique sample number with the following designation system: WPAFB-LF8/10-LW0x-yyyy. The “x” represents the quarter of the year in which the sample is being collected. The “yyyy” represents the current year at the time of sampling. Therefore, the sample number for the discharge compliance sample collected in January of 2001 is WPAFB-LF8/10-LW01-2001.

In addition to reporting the treatment system discharge analytical data semiannually in the April and October reports, quarterly reports are submitted to the WPAFB project manager and to the City of Fairborn Water Projects Coordinator.

## **2.5 OU1 ROD Semiannual Monitoring Well Sampling Results**

The following sections summarize the analytical results from the April 2001 sampling event at LFs 8 and 10. Table 2-4 presents the laboratory detection limits for the April 2001 sampling event and the compliance levels established in the *SCOU - Landfills 8 and 10 ROD* (WPAFB, 1993). Compliance levels establish acceptable exposure levels that are protective of human health and the environment and include the MCL and/or a ROD compliance level (i.e., a risk-based concentration level) for each COC. The ROD compliance levels were based on back calculating the risk associated with the potential household use of the landfill leachate (ROD, Section I; WPAFB, 1993). When both an MCL and a ROD compliance level exist for a COC, the ROD compliance level was used for evaluation. The ROD compliance levels are typically more conservative criteria than the MCLs and are the current ROD criteria for system shut-off. If after one year of groundwater monitoring where no compliance levels are exceeded by the COCs, the leachate collection and treatment system will be shut off. WPAFB is currently evaluating these regulatory limits and may continue with the submittal of an Explanation of Significant Differences (ESD) to propose changing these limits.

### **2.5.1 Landfill 8 Analytical Results**

Tables 2-5 and 2-6 present summaries of the LF8 VOC and total metals analytical data, respectively. In addition to the April 2001 sampling results, data from previous sampling events have been included. Appendix C-1 presents a complete listing of the April 2001 analytical results. Figure 2-5 presents the concentrations of the detected COCs at LF8 for April 2001 (concentrations exceeding MCLs and/or ROD compliance levels are denoted in red).

### **2.5.2 Landfill 10 Analytical Results**

Tables 2-7 and 2-8 present summaries of the LF10 VOC and total metals analytical data, respectively. In addition to the April 2001 analytical results, data from previous sampling events have also been included. Figure 2-6 presents the concentrations of the detected COCs at LF10 for the April 2001 sampling event (concentrations exceeding MCLs and/or ROD compliance levels are denoted in red).

### **2.5.3 Leachate Collection System Effluent Sample**

Quarterly sampling of the OU1 leachate collection system discharge line was conducted in January and April 2001. One sample from each quarter was analyzed for VOCs, inorganics, oil and grease, total suspended solids, chemical oxygen demand, and pH (none of the VOC or inorganic concentrations detected in the sample exceeded City of Fairborn requirements). Analytical results for the January and April 2001 effluent samples are presented in Appendix C-1.

## **2.6 OU1 Explosive Gas Monitoring**

The following section presents an overview of the explosive gas monitoring effort at OU1. As described in Section 2.1, the purpose of the OU1 explosive gas monitoring is to determine the effectiveness of the landfill gas (LFG) collection system in establishing a capture zone that extends outside the landfill boundaries so that migration of explosive gas beyond the landfill boundaries is prevented.

Procedures for the explosive gas monitoring at LFs 8 and 10 are presented in the O&M Plan and in the October 1998 LTM report (IT, 1999a). One exception to the procedures is that in place of the CGI as specified in the O&M Plan (Kelchner, 1997), a Landtec® GA-90 Infrared Gas Analyzer was used for the explosive gas monitoring. The GA-90 is equipped with a built-in sampling pump that allows for drawing a sample from the explosive gas monitoring probes. Levels of methane, lower explosive limit (LEL), carbon dioxide, oxygen and pressure are displayed in a digital readout. The existing explosive gas monitoring probes and permanent punchbar locations located within the Base residential property lines surrounding LFs 8 and 10 are used to monitor for landfill gas potentially migrating from OU1 (Figures 2-7 and 2-8). In addition to the monitoring probes and punchbar locations, the gas barrier trench (GBT) located east of LF10 is monitored at locations located on the GBT piping (Figure 2-8). The explosive gas monitoring probes, permanent punchbar testing stations, and GBT are monitored per the ROD:

quarterly for the first five years of the post-remedial action construction period and semiannually between five years and the director's granting authorization to cease monitoring.

OU1 explosive gas monitoring was conducted on January 30 and May 2, 2001. Results of the explosive gas monitoring for LFs 8 and 10 are presented in Tables 2-9 and 2-10, respectively.

### **LF8**

As summarized in Table 2-9, methane/explosive gas was detected in monitoring point LF08-MP001 during both the January and May 2001 monitoring periods. Monitoring points LF08-MP010 and LF08-MP012 had methane/explosive gas detections reported for the January sampling event. During the May 2001 sampling event, methane/explosive gas measurements were not taken in points LF08-MP011 and LF08-MP012 due to defective pressure valves. These valves were replaced in July 2001. To ensure that methane is not migrating into the adjacent house or surrounding utility lines, "punchbar" monitoring locations (manually driven, 1/2-inch boreholes) are also monitored quarterly. Punchbar locations are shown on Figure 2-7. As summarized in Table 2-9, methane/explosive gas was not detected at these four locations during the monitoring period.

### **LF10**

At LF10, methane/explosive gas was detected in monitoring points LF10-MP14, MP016 and MP020 during the May sampling event (Table 2-10). During the May 2001 monitoring event methane was also detected in punchbar locations LF10-PT090 and PT100, and at both the south and north ends of the gas barrier trench (Figure 2-8) and Table 2-10). During the January monitoring event, the south end of the gas barrier trench was the only monitoring point with detected methane concentrations.

## **2.7 Water Level Monitoring and Evaluation**

Quarterly water level monitoring was conducted on January 25 and April 18, 2001. From April 12 through the 18 2001, the extraction system was not operating due to a power outage. The objective of measuring groundwater levels is to evaluate the impact of the extraction system on the water levels in the vicinity of the landfills. The *Design Package Number 1, Final (100%) Design* (IT, 1994) states that "the leachate collection system shall establish a capture zone that extends outside the landfill boundaries as determined by groundwater level measurements." To accomplish this objective, the soil barrier layer of the cap has an approximate maximum permeability of  $1 \times 10^{-6}$  cm/s coupled with a synthetic geomembrane as the primary components to

minimize infiltration (Kelchner, 1997). This design is consistent with the alternative cap design recommended in the "Guidance on Alternative Designs for Liners and Cap System Barrier Layers" (OEPA, 1993). In addition, the extraction well networks for each landfill were uniquely configured to accomplish the collection system objective.

Measurements were recorded to the nearest 0.01-foot in accordance with FP 7-2, using electric tape water level indicators. Figures 2-2 and 2-3 show the locations of monitoring and extraction wells that are used to observe groundwater levels at LF8 and LF10, respectively. The coordinates of the wells, their reference point, screen interval, and the water levels are provided in Tables 2-11 and 2-12 for LF8 and LF10, respectively. OU1 groundwater level monitoring logs for January and April are presented in Appendix B-2.

Groundwater contours were generated for the observed hydraulic heads using SURFER™, a contouring package (Golden Software, Inc., Golden, Colorado). The contours were generated by first overlying a grid on the landfill. Hydraulic head values at the grid nodes were then computed from the measured values using linear kriging, an interpolation option in SURFER™.

### **Landfill 8**

The objective of the extraction system at LF8 is to provide a capture area on the downgradient portion of the landfill (east and northeast sides) that prevents migration of the dilute leachate passing through and under LF8. As the regional groundwater flow direction in this area is from west to east, the extraction wells have been configured at the downgradient boundary of the landfill to provide the necessary capture. Figures 2-9 and 2-10 present the LF8 water level elevations for January and April 2001, respectively. Due to the varying depths of the screened intervals, not all of the measured groundwater elevations were used to develop the groundwater elevation contours. Only monitoring wells with screened intervals at the approximate elevation of the bottom of the extraction wells were contoured. The groundwater flow direction arrows in Figures 2-11 and 2-12 represent velocity vectors. The length of an arrow represents a relative groundwater velocity magnitude.

Although the regional groundwater flow is from west to east, it is altered by the presence of extraction wells that create local cones of depression. Figures 2-13 and 2-14 illustrate the zones of capture created by the LF8 extraction wells. The pathlines in these figures represent the downgradient migration of potential contaminant particles released on the upgradient (western) side of LF8. The groundwater extraction system is configured such that while under pumping

conditions, migrating contaminant particles crossing the landfill are captured by the extraction wells along the eastern edge of the landfill. If a specific extraction well is not operating properly, particle capture will not occur through that portion of the landfill. Particle capture is indicated by a pathline terminating at an extraction well.

During January 2001, particle capture along the eastern LF8 boundary is indicated in extraction wells EW-0803, EW-0805 and EW-0816, only (Figure 2-13). The OU1 groundwater extraction system was not operating from April 12 through the 18 due to a power outage. As seen in the April 18 water level contours on Figure 2-10, and the flow vector and particle track plots on Figures 2-12 and 2-14, respectfully, groundwater is predominantly flowing through the landfill without capture. There appears to be however, some residual effects of the pumping in the vicinity of extraction wells EW-0801 and EW-0805. During both monitoring events capture did not occur for particles originating from the far upgradient corners of the landfill. Subsequent to the April monitoring event, WPAFB has cleaned the silt from around the pump inlets in the wells to improve efficiency. The impact of the cleaning on particle capture will be evaluated after the next two rounds of water level monitoring in July and October.

### **Landfill 10**

Landfill 10 represents a local hydrologic high where groundwater from outside the landfill does not contribute substantially to leachate generation. The objective of the extraction system at LF10 is to maintain groundwater levels below the bottom of the landfill in order to prevent water from mixing with the in-situ waste at the landfill. By controlling the groundwater levels, the impact of the LF10 leachate on the environment is minimized.

The effectiveness of the Landfill 10 extraction system is evaluated by comparing the elevation of the water table to the elevation of the landfill bottom. The system is achieving the stated goal as long as the water table is below the landfill bottom, and thus any verification of the radius of influence for the extraction wells is not necessary. The extraction wells serve the purpose of lowering the water table rather than creating a capture zone under Landfill 10. Water level elevations for the entire LF10 hydraulic containment monitoring well network for January and April are presented on Figures 2-15 and 2-16. Figures 2-17 and 2-18 illustrate the water level elevation contours for January and April 2001, respectively, generated from the extraction wells and monitoring wells screened at the approximate same depth as the extraction wells. As discussed above, the OU1 groundwater extraction system was off due to a power outage over the period of April 12 through the 18, including the day water levels were measured (April 18). While

the regional groundwater flow is north-northeast, it is interesting to note that some local water table mounds exist at extraction well locations. For example, well EW-1003 in the southern portion of LF10 has been out of service for several months and currently has the highest groundwater level in this area for both the January and April 2001 data. This well was brought back into service on July 12, 2001.

To examine the effectiveness of each extraction well, historic water level elevations and the landfill bottom elevation were compared on well hydrographs (Figures 2-19 through 2-28). Landfill bottom elevations were determined from extraction well installation notes and the drilling reference point elevations. The graphs show the fluctuations in water levels from one sampling event to another.

With the extraction system off during the April groundwater monitoring event, the majority of the water levels in the extraction wells were higher than was normally observed during previous quarters. The hydrographs show that the majority of extraction well water levels are below the bottom of the landfill. However, as seen in the hydrograph for well EW-1003 (Figure 2-20), water levels are consistently above the bottom of the landfill indicating that this extraction well may be malfunctioning. WPAFB is currently servicing the pump in EW-1003 to restore operation. Extraction wells EW-1006 (Figure 2-21) and EW-1016 (Figure 2-24) have historically had water levels fluctuating above the bottom of the landfill. The water level in EW-1006 had risen to the bottom of the landfill during April. The water level in EW-1016 however, had dropped back below the bottom of the landfill during April. Figure 2-29 is a cross-sectional profile along the long axis of LF10 (Figure 2-3) illustrating the variable landfill bottom and April 2001 water level elevations throughout the landfill. This profile provides an indication that groundwater levels are generally below the base of the landfill.

## **2.8 Conclusions**

Water levels at LF8 and the resultant capture zone at each extraction well appears to vary seasonally with more substantial capture occurring during the dry seasons. Based on the historic groundwater levels, it appears that the extraction system at LF8 would provide adequate groundwater capture in the center portion of the landfill if all the pumps are operating optimally. According to TetraTech, the remedial action contractor for Landfills 8 and 10, many of the wells at LF8 had become silted-in by April. These wells were cleaned in June 2001 and subsequent quarters of water level measurements will indicate if pumping efficiency and capture has improved. Figure 2-30 presents a

north-south trending cross-section of the lithology and water table surface through the eastern portion of LF8. The cross-section line is shown on Figure 2-2.

At LF10 the extraction system is maintaining water levels below the landfill bottom at 14 of 16 LF10 well locations. Extraction well EW-1003 was brought back into service on July 12. Extraction well EW-1006 has been cleaned subsequent to the April monitoring event but the exact date is unknown.

### **3.0 OU5 Monthly Hydraulic Containment Monitoring**

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This chapter presents the results of the hydraulic containment monitoring for OU5 at Wright-Patterson Air Force Base, Ohio during the reporting period of November 2000 through April 2001.

#### **3.1 Introduction**

The monthly hydraulic containment monitoring at OU5 was conducted in accordance with the OU5 System Performance Monitoring Plan [(SPMP) IT, 1992a] and Addendum No.1 to the SPMP (IT, 1999d). The hydraulic containment monitoring program at OU5 currently consists of monthly water level monitoring at 39 monitoring wells and extraction well EW-1. Included in the 39 monitoring wells are selected wells in the City of Dayton well clusters (MW130, MW131, MW132 and MW133). These 40 total wells are an expanded monitoring network from the original network presented in the SPMP (IT, 1992a). The objective of monitoring groundwater levels is to evaluate the effectiveness of the groundwater extraction system in containing contaminated groundwater in the vicinity of the site (i.e., maintaining a capture zone to prevent migration of contaminated groundwater beyond the Base boundaries).

The original water quality monitoring program under the SPMP included quarterly sampling of 19 OU5 monitoring wells. Under the subsequent Removal Action System Performance (RASP) monitoring program, 24 wells were sampled quarterly. Of the 24 wells monitored, VOCs were regularly either not detected or were detected significantly below the MCL in 15 wells (Tetra Tech, 1998). A summary of the historic contaminant concentrations is presented in Table A-3.

Based on these historic analytical results and that hydraulic containment of the groundwater plume is occurring, the 24 monitoring wells specified for continued sampling were reduced to nine wells. These nine wells were then presented in the EE/CA (IT, 1999b) and GWOU ROD (WPAFB, 1999). To provide a more comprehensive coverage downgradient of EW-1, monitoring wells Mad Mon 127 (HD-13D) (screened interval: 96 to 106 ft, bgs), and CW04-060 (screened interval: 50 to 60 ft, bgs) were added to the water quality monitoring well network during the April 2000 sampling event. These 11 wells are currently sampled semiannually and now comprise the LF5 groundwater quality monitoring network.

### **3.2 Site Location and Description**

OU5, located in the southwest corner of Area C (Figure 3-1), is a collection of discrete sites, which have or may have been used for handling or disposal of hazardous chemical materials in the past. Discrete sites include LF5 and the LF5 Extension, Fire Training Area 1 (FTA1), the Gravel Lake Tanks Site (GLTS), and Burial Site 4 (BS4). Other areas included in OU5 are located south of LF5 to Hebble Creek, north of LF5 boundary to the extension of Trout Creek, west of the WPAFB southwest boundary to Huffman Dam and north of FTA1 to Hebble Creek. Site background information including a summary of the types of wastes that were historically disposed of at LF5 and a synopsis of the land use in the surrounding area, is presented in the October 1998 LTM report (IT, 1998a) and the OU5 Remedial Investigation (RI) Report (IT, 1995a).

The results of the groundwater level monitoring at OU5 will be used to evaluate the effectiveness of the groundwater extraction system in containing groundwater in the vicinity of the site. The hydraulic containment monitoring procedures and results conducted under the LTM program for OU5 are presented in the following sections. Long-term groundwater monitoring for OU5 is being conducted under the LTM program and is described in Chapter 6.0.

### **3.3 Further Action Area-A**

The western boundary of OU5 has been designated Further Action Area A (FAA-A) to address the groundwater contamination in this area. An in-situ treatment pilot study for this area was conducted from April 19 to July 13, 2000. In April 2000 one single well (TTW-01) and four well pairs (TTW-02 through TTW-05) were installed to monitor the progression of the test. The in-situ test consisted of injecting an oxidant (potassium permanganate) into wells CW05-085 and TTW-01, to oxidize chlorinated ethenes (tetrachloroethene [PCE], trichloroethene [TCE] and dichloroethene [DCE]). For a complete presentation of the test please see the *Further Action Area-A Treatability Tests, WPAFB, Groundwater Basewide Monitoring Program* (IT, 2001a).

### **3.4 Water Level Monitoring**

The objective of measuring groundwater levels at OU5 is to evaluate the impact of the groundwater extraction system on the water levels in the vicinity of the site. Water level measurements were taken at each well from a surveyed reference point. Wells without a dedicated sampling pump were measured from the top of the inner well casing. For wells with dedicated sampling pumps, measurements were taken from the top of the well cap at the monitoring port. Figures 3-2 through 3-7 show the monthly water level contours for the monitoring wells and extraction well EW-1

during the period of November 2000 through April 2001. Hydraulic head in a monitoring well was computed by subtracting the measured depth to water from the reference elevation for the well (Table 3-1). OU5 water level monitoring field logs are presented in Appendix D.

The groundwater contours on Figures 3-2 through 3-7 were generated for the observed hydraulic head using SURFER™, a contouring package (Golden Software, Inc., Golden, Colorado). The modeling area of OU5 represented in the figures is 2,300 feet long and 2,200 feet wide. The contours were generated by first overlying the area with a 231 by 221 grid. The value of the hydraulic head at a grid node was computed from the 22 measured values by using linear kriging, an interpolation option in SURFER™.

Accuracy of a water level map depends not only on the number of measured values but also on the distribution of the measuring points (monitoring wells). As seen in Figures 3-2 through 3-7, most of the wells used in monitoring groundwater levels at OU5 are located in a narrow north-south zone on the west side of the LF5. In addition to being concentrated within the narrow zone, the monitoring wells are also clustered. Thus, in effect, the number of points used in the contouring procedure, were reduced. In spite of the distribution of the data, the water levels are reasonable considering the historic water levels and the regional groundwater flow direction. The groundwater elevation contours in the figures are representative of the general groundwater flow conditions at OU5 and indicate that there is a cone of depression created when extraction well EW-1 is in operation.

### **3.5 Groundwater Capture Zone Analysis**

The main purpose of the extraction well is to maintain a capture zone to prevent migration of contaminated groundwater from the LF 5 area. The main mechanism of contaminant transport is advection (i.e., a process by which moving groundwater carries dissolved solutes). Thus understanding the groundwater flow pattern is the first step in an analysis of contaminant transport. In an isotropic aquifer, the flow lines are perpendicular to the equipotential lines (groundwater contours).

The water level contour maps were constructed from measured values imported into Visual MODFLOW™, a widely used groundwater simulation package (Waterloo Hydrogeologic, Inc., Waterloo, Ontario). The model area was discretized into 2310 columns and 220 rows, with a uniform spacing of 10 feet. In addition to the "isotropic" assumption, the aquifer is also assumed to

be homogeneous within the model area. Groundwater velocity vector and particle tracking plots were generated by Visual MODFLOW. The length of a velocity vector is proportional to the actual groundwater velocity.

The velocity vectors, shown on Figures 3-8 through 3-13, indicate that groundwater flow across the eastern portion of LF5 is in the southwest direction. At the western boundary of LF5, groundwater flow direction is altered by EW-1 where a capture zone is created. The influence of extraction well EW-1 on the regional flow can be evaluated by examining the flow pattern in the vicinity of the landfill. The relatively long velocity vectors and closely spaced water level contours upgradient from the extraction well indicate that EW-1 is "pulling" water from beneath the landfill.

Downgradient from EW-1 the water level contours are widely spaced and the velocity vectors are relatively short. A stagnation zone exists in this area.

The capture zone created during most months by EW-1 can be outlined by examining the plot of the particle tracks (Figures 3-14 through 3-19). EW-1 was shut off the day prior to the March monitoring and for the last half of April (including the monitoring date, April 30) for maintenance. The water level elevations for the months other than March and April are representative of normal operating conditions for EW-1 and the capture zone created. It appears that groundwater "particles" released upgradient from the central portion of LF5 are being "captured" by EW-1. However, as seen on Figures 3-14 through 3-18, the particle tracks along southern portion of LF5 are influenced but may not be completely captured by EW-1.

### **3.6 Conclusions**

In conclusion, based on the current groundwater elevation contouring and historical data, it appears that when extraction well EW-1 has been operating consistently at approximately 545 gpm or greater over an extended period, a hydrodynamic barrier to contaminant migration is created over the majority of LF5's western boundary. In the southern portion of LF5, EW-1 did not consistently achieve complete capture during the reporting period. In the southern area, downgradient wells CW04-060 and HD-13D (located adjacent to HD-13S) were added to the monitoring well network beginning with the April 2000 sampling event and are now sampled semiannually. These wells will be monitored as a means to observe potential contaminant migration from the southern portion of the landfill.

The prolific aquifer in the OU5 area is the most likely cause for the partial capture. Therefore, sustained operation of EW-1 is needed to establish a larger area of influence.

To further evaluate the performance of EW-1, a step drawdown pump test is proposed for EW-1. This test will likely occur during the summer of 2001. A work plan detailing the activities of the test will be submitted to the agencies for approval.

### **OU5 VOCs Removed**

Table 3-2 presents a summary of the monthly and total quantities of VOCs removed from the extracted groundwater at LF5 by the groundwater treatment system (GWTS) between November 2000 and April 2001. The GWTS extracted and treated a total of approximately 115.7 million gallons of water during this period and removed approximately 36 pounds of the listed VOCs, 34.5 pounds of which were TCE. These totals were compiled by TetraTech in their monthly reports to WPAFB.

Complete system performance reports on pumping rates, system down time, repairs made and estimated volume of VOCs removed from the extracted groundwater, are compiled monthly for WPAFB by Tetra Tech and provided to the agencies. Analytical data and groundwater treatment system effectiveness is evaluated in Section 7.0

## 4.0 Landfill Gas Monitoring at OU4

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Chapter 4 presents the results of the landfill gas monitoring at OU4.

### 4.1 Introduction

Landfill gas monitoring is conducted at OU4 in accordance with the *OU4 Landfill Gas Monitoring Technical Memorandum* (CH2M HILL, 1998) and the *Operation and Maintenance Plan Operable Unit 4 Landfills 3, 4, 6, and 7, and Drum Staging/Disposal Area* (CH2M Hill, 1997). This program includes quarterly monitoring of soil gas at Landfills 3, 4, 6, and 7 (OU4). The landfills are located on the southeastern boundary of Areas A and C, near the intersection of Skeel Avenue and Hebble Creek Road (Figure 4-1). The objective of this monitoring program is to evaluate the migration of landfill gas away from the landfills towards nearby structures. Data collected as part of this monitoring program is used to evaluate trends in the generation of landfill gas and to determine if a landfill gas collection system at OU4 will be necessary. Site background information including a summary of the types of wastes that were historically disposed of at OU4 and a synopsis of the land use in the surrounding area, is presented in the October 1998 LTM report (IT, 1999a).

The landfill gas (LFG) monitoring network at OU4 consists of eight gas monitoring wells (LG-1, LG-2, LG-3, LG-6, LG-7, LG-8, LG-9, and LG10) that are located around the perimeters of Landfills 3, 4, 6, and 7, and locations inside Building 878 (Figure 4-2). Building 877, which has been removed, was a previous monitoring point located adjacent to monitoring point LG-10. This area is now an open lot. Landfill gas measurements were taken on January 29 and April 26, 2001. The field parameters of methane, lower explosive limit (LEL), carbon dioxide, and oxygen, were measured using a LandTec GA-90 infrared gas analyzer. The flush-mounted surface completion for monitoring point LG-10 had been damaged with a snowplow the previous winter and could not be opened. On January 17, 2001, the surface completion for LG-10 was replaced and was monitored during the January 2001 quarterly monitoring event.

### 4.2 OU4 Landfill Gas Monitoring Results

April 2001 and historic (CH2M HILL, 1994) sampling results, including well number, date, and gas concentration, are presented in Table 4-1. During the April 2001 monitoring, methane was detected at monitoring point LG-10 only at a concentration of 2.5% by volume. This concentration equals 50% of the LEL.

## 5.0 OU2 Semiannual LTM Groundwater Sampling: Round 8

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This chapter presents the long-term natural attenuation monitoring results for OU2 at Wright-Patterson Air Force Base, Ohio.

### 5.1 Introduction

In accordance with the Record of Decision (ROD) (WPAFB, 1997), and remedial alternative GW2a from the Final Feasibility Study (FS) for Spill Sites 2, 3, and 10 (SP2, SP3 and SP10) within Operable Unit 2 (OU2 FS; ES, 1996), a long-term soil gas and groundwater monitoring program was initiated for this area. The monitoring program includes the Baseline evaluation, conducted in May 1997, and semiannual rounds of groundwater and soil gas sampling and analysis. The objectives of this monitoring program are to evaluate the effectiveness of in-situ biodegradation and natural attenuation processes on petroleum hydrocarbon contamination in soil and groundwater.

The Baseline evaluation was initiated on May 5, 1997 in accordance with the *Draft-Final, Site-Specific Work Plan Addendum No. 2* (IT, 1997a) to the *Final Site-Specific Work Plan For Remedial Design Tasks under the BMP* (IT, 1995b). As presented in the Baseline report (IT, 1999f) field activities for the Baseline event included one round of soil gas and groundwater sampling to provide a reference distribution of the petroleum hydrocarbons at OU2. The subsequent LTM semiannual sampling rounds were conducted as follows:

- Round 1 sampling was conducted on October 20 through October 23, 1997 (IT, 1997b)
- Round 2 sampling was conducted on April 28 and 29, 1998 (IT, 1997c and 1998)
- Round 3 sampling was conducted on October 15 and 16, 1998 (IT, 1999e)
- Round 4 sampling was conducted on April 13 and 14, 1999 (IT, 2000b)
- Round 5 sampling was conducted on October 11, 1999 (IT, 2000c)
- Round 6 sampling was conducted on April 19, 20, 24 and 25, 2000 (IT, 2001b).
- Round 7 sampling was conducted on October 17 and 19, 2000 (IT, 2001c)

This chapter presents methods and results of analyses from the Round 8 soil gas and groundwater sampling event. Round 8 groundwater sampling was conducted from April 16<sup>th</sup> through the 19<sup>th</sup>, 2001. As determined from the groundwater analytical data from the Baseline and subsequent sampling rounds, only selected wells at OU2 comprise the ROD monitoring network. The majority of the wells selected for sampling are located in the total volatile hydrocarbon (TVH)

plume identified in the OU2 FS and are screened across the water table, which historically is the zone of highest concentration of dissolved phase hydrocarbons.

Groundwater samples were collected from the following 12 existing wells that comprise the OU2 monitoring network in the vicinity of the petroleum, oil and lubricant (POL) tank farm (IT, 1997d):

C OW-1	C P18-1	C WP-NEA-MW20-2S
C OW-2	C P18-2	C WP-NEA-MW21-3S
C OW-3	C 04-016-M	C WP-NEA-MW26-3S
C OW-4	C 04-518-M	C WP-NEA-MW28-5S

and the following downgradient wells to be sampled periodically:

    C WP-NEA-MW25-1D  
    C WP-NEA-MW25-2I

Wells WP-NEA-MW25-1D and WP-NEA-MW25-2I were added for this round of sampling in accordance with IT's proposed revision to the LTM (IT, 2000c). These wells were included to provide additional monitoring points located downgradient from the Spill Site 10 (SP10) hydrocarbon plume. During every semiannual sampling event two different wells from the perimeter of the hydrocarbon plume will be sampled to monitor for potential migration.

Monitoring well WP-NEA-MW21-3S has historically had a hydrocarbon layer of varying thickness (up to 1 foot) present on the water surface. In October 1998, this well was added to the original eleven OU2 monitoring wells proposed in the ROD work plan by first removing the hydrocarbon layer prior to sampling (Section 5.8), then removing the residual hydrocarbon on the surface.

## **5.2 Groundwater Sampling Field Procedures**

OU2 monitoring wells were purged and sampled using the low flow rate/low volume purging and low flow rate sampling (micropurge) method. Monitoring wells were purged and sampled using dedicated pneumatic bladder pumps with the inlets placed within the screened interval in

accordance with WPAFB FP 5-2 (groundwater sampling) and the addendum to FP 5-2 (micropurging).

Groundwater samples were analyzed in the field for natural attenuation parameters of dissolved oxygen (DO) and ferrous iron using a Horiba<sup>®</sup> U-10 Water Quality Checker and a HACH<sup>®</sup> Photometer Kit. In addition, during the purging of each monitoring well, temperature, pH, conductivity, turbidity, and oxidation-reduction potential (ORP) were measured in the field in accordance with FP 5-5 and FP 5-6. The purge water discharge was routed to a flow-through type cell fitted with the field instruments. Field measurements were recorded on groundwater purge logs (Appendix F) and are summarized in Table 5-1.

### **5.3 Groundwater Analytical Parameters**

Groundwater samples were sent to an off-site laboratory (OSL) (Severn Trent Laboratories) and analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX) using U.S. Environmental Protection Agency (USEPA) Method 8260B, nitrates (Method 300.0A), and sulfate (Method 300.0A). The natural attenuation parameters of methane, ethane and ethene were analyzed by Severn Trent Laboratories' Austin Texas facility. Request for Analysis/Chain-of-Custody Records for April 2001 OU2 sampling event are presented in Appendix F.

### **5.4 Soil Gas Sampling Field Procedures**

During the Baseline field activities, 15 permanent soil gas probes were installed throughout the POL tank farm and downgradient vicinity to monitor for hydrocarbon vapor in the vadose zone above the water table. Construction details of the soil gas probes are presented in the OU2 Baseline Sampling Results Report (IT, 1997b). Soil gas samples were collected on May 1 and 2, 2001 from 14 of the original 15 soil gas probes. Monitoring point OU2-SV05 was destroyed during recent construction activities in the POL tank farm and will not be replaced.

Soil gas samples were collected by first evacuating the soil probes with a hand operated vacuum syringe connected to a three-way valve and sample tubing. Approximately 360 milliliters of soil gas were evacuated from the probes prior to sampling. Vapor samples were collected by extracting the soil gas into the syringe, then turning the valve to discharge injecting the sample into a 3-liter Tedlar<sup>™</sup> bag. Soil gas samples were kept at ambient temperatures and packed in foam-lined shipping containers. The soil gas samples were analyzed off-site by Severn Trent Laboratories for the BTEX compounds and TVH by USEPA Method 19 TO-3. Soil gas samples

were also analyzed for the natural attenuation parameters of methane, oxygen and carbon dioxide by ASTM D1946 using a gas chromatograph equipped with a thermal conductivity detector.

## **5.5 Analytical Results**

The OU2 analytical results are summarized in the following sections.

### **5.5.1 Groundwater**

OSL groundwater analytical results from Round 8, prior LTM sampling rounds, and historical sampling events for OU2, are summarized in Table 5-2. Round 8 OSL groundwater analytical data for benzene and total BTEX are presented on Figures 5-1 and 5-2, respectively. Benzene concentrations ranged from below detection limits to a maximum of 49 µg/L in well NEA-MW21-3S. As seen in Figure 5-1, benzene contamination is apparently distributed in two plumes. The larger plume is centered downgradient from the POL tank farm and is known collectively as the POL tank farm plume. The second, smaller plume is in the vicinity of SP10. The complete listing of analytical results from the April 2001 sampling is presented in Appendix G.

### **5.5.2 Soil Gas**

Soil gas analytical results are summarized in Table 5-3. OSL analytical data for soil gas is presented in Appendix G. Figure 5-3 presents the distribution of the BTEX concentrations in the soil gas for Round 6 and the 1997 Baseline concentrations for comparison. As seen in Figure 5-3, the highest soil gas BTEX concentrations are centered on SP10 with the tail of the plume extending past SP3. The current soil gas BTEX plume has shifted to the west-southwest compared to the Baseline plume (Figure 5-3).

The Round 8 TVH soil gas plume is presented in Figure 5-4 and has a similar distribution to the BTEX presented in Figure 5-3, except that the TVH plume is centered on SP3.

### **5.5.3 Natural Attenuation Parameters**

Concentrations of the natural attenuation parameters of DO and ferrous iron are measured in the field and are presented in Table 5-1 with the other physical parameters. The distribution of the Round 8 DO concentrations in groundwater is presented in Figure 5-5. The distribution of ferrous iron concentrations in groundwater is presented in Figure 5-6.

Groundwater analysis for sulfate and nitrate were conducted in the OSL and analytical results are presented in Table 5-2. The distributions of sulfate and nitrate concentrations in groundwater are presented in Figures 5-7 and 5-8, respectively.

## **5.6 Discussion**

### **Groundwater**

BTEX concentrations for the selected LTM monitoring wells are graphed as a function of time in Figures 5-9 through 5-21. Figure 5-10 presents two graphs of the BTEX concentrations in well 04-518-M. The top graph includes the initial concentrations of BTEX in September 1988, which includes a xylene detection of 36,000 µg/L. The bottom graph excludes the initial data to show the fluctuations of BTEX concentrations beginning in 1991 on a lower scale.

In general, Round 8 groundwater concentrations of benzene and BTEX have shown significant decreases since the OU2 RI sampling (ES, 1995). In comparison to the previous sampling round (October 2000) the greatest decrease occurred in well NEA-MW21-3S where benzene decreased from 290 µg/L to 49 µg/L. Benzene concentrations at the remaining wells that had elevated benzene concentrations (04-518-M and NEA-MW20-2S) remained consistent with the October 2000 levels. The POL tank farm plumes of benzene and BTEX concentrations remain similar to those reported in the baseline sampling; although the center of the plume has shifted slightly to the south.

Monitoring well WP-NEA-MW28-5S, located between the two hydrocarbon plumes delineated in Figures 5-1 and 5-2, continues to have nondetectable concentrations of the BTEX compounds. Monitoring well OW-2 is also located between the two hydrocarbon plumes and BTEX concentrations have decreased to below detection levels (Table 5-2). This would indicate that POL hydrocarbon plume is probably not migrating toward the plume at SP10.

Figure 5-22 is a graph showing the benzene concentrations along the length of the hydrocarbon plume in the down gradient direction. The reference point (0 feet) is at monitoring well 04-517-M located immediately up gradient of the POL tank farm plume. Benzene concentrations at this well were below the detection limit and are considered 0 Fg/L for the Baseline sampling (May 1997). This is the reference point for down gradient distances and concentrations for the Baseline and Rounds 1 through 8 sampling events (October 1997, April 1998, October 1998, and April 1999,

October 1999, April 2000, October 2000 and April 2001, respectively). The distances between each well in the hydrocarbon plume, down gradient of well 04-517-M are as follows:

- NEA-MW20-2S = 420 feet
- NEA-MW21-3S = 860 feet
- 04-518-M = 930 feet
- OW-1 = 1130 feet
- NEA-MW28-4I = 1310 feet
- OW-3 = 1480 feet
- P18-2 = 1580 feet
- OW-4 = 1660 feet
- P18-1 = 1855 feet.

From Figure 5-22, significant reduction in benzene concentrations has been observed in the area of the SP10 plume and at well NEA-MW21-3S. Benzene concentrations in the other areas of the POL plume have remained consistent throughout the monitoring period.

Downgradient monitoring wells NEA-MW25-1D and NEA-MW25-2I, screened from 55 to 60 ft, below ground surface (bgs) and 33 to 38 ft, bgs, respectively, were added to the April 2001 monitoring program to detect for the potential vertical migration of the SP10 hydrocarbon plume. BTEX compounds were not detected in these wells during the April 2001 sampling event.

### ***Natural Attenuation Parameters***

The expected relationship between BTEX concentrations and the concentration of a particular natural attenuation parameter (electron acceptor or its reduction product) when natural attenuation is occurring, is summarized in the following table:

<b>BTEX</b>	<b>Oxygen</b>	<b>Ferrous Iron</b>	<b>Sulfate</b>	<b>Nitrate</b>	<b>Manganese</b>	<b>Methane</b>
High	Low	High	Low	Low	High	High
Low	High	Low	High	High	Low	Low

When comparing the BTEX concentrations in groundwater (Figure 5-2) to the concentrations of the natural attenuation parameters of dissolved oxygen (DO) (Figure 5-5), ferrous iron (Figure 5-6), sulfate (Figure 5-7), and nitrate (Figure 5-8), a correlation similar to the above table is not always present for every parameter.

Sulfate (Figure 5-7) is the only natural attenuation parameter that shows a general correlation for this round of sampling. Sulfate was not detected at the three wells that had the highest BTEX concentrations, NEA-MW21-3S, NEA-MW20-2S and 04-518-M. The exception to the historic trend for Round 8 data is at well P18-2 where the sulfate concentration increased from below detection levels to 191 mg/L. This increase may have been due to turbidity in the sample (60 NTU).

## **5.7 Conclusions**

### **Groundwater**

Figures 5-1 and 5-2 provide a comparison of the current benzene and BTEX concentrations in groundwater to the Remedial Investigation (RI) results from 1991 and 1992 (ES, 1995). As seen in the current and RI isopleths plotted on the figures, the size and concentration of the current benzene and BTEX plumes at SP 10 have decreased from 1991-1992. The 1992 Engineering Science model of the POL hydrocarbon contamination attenuation was created using idealized conditions to provide a conceptual model and an estimate of future contaminant concentrations in soil and groundwater (ES, 1996). The 1992 model predicted that benzene concentrations would be below the MCL in 8 to 9.5 years (2000-2002). After 9 years (2001) BTEX concentrations are reducing towards remediation goals however, it does not appear that benzene concentrations at all locations will be below the MCL within the year.

Table 5-5 compares the highest detected benzene concentrations from selected wells and concentrations from the last round of sampling. Benzene concentrations in the SP10 plume area have substantially decreased from the initial concentrations. Figures 5-9 through 5-21 present the OU2 monitoring well network currently being sampled and the concentrations of BTEX compounds through time.

The size of the benzene and BTEX plumes in POL tank farm have remained approximately the same or have decreased slightly since the RI sampling. However, as seen in Figure 5-22, benzene concentrations within the plumes have decreased significantly since the Baseline sampling. The majority of the monitoring wells from the Baseline sampling have remained in the OU2 monitoring program.

### **Soil Gas**

BTEX and TVH concentrations for the soil gas LTM monitoring points are graphed as a function of time in Figures 5-23 through 5-35. TVH only was graphed for locations SV011, SV12 and SV13 where BTEX compounds were not detected.

Generally, soil gas analytical results from the April 2001 sampling event indicate similar concentrations of BTEX compounds (predominantly benzene) and TVH when compared to previous sampling periods. The exceptions are the increase in TVH at location SV09 (Figure 5-30) and the increase in both BTEX and TVH at location SV15 (Figure 5-35).

### **Groundwater Flow**

Figure 5-36 presents a graph of the average water level elevations for the seven LTM sampling events at OU2. As seen in Figure 5-36, the water table is typically higher in the spring of the year (April). Wells 04-518-M (Figure 5-10a) and OW-4 (Figure 5-19) indicate how the groundwater hydrocarbon concentrations in some wells may be influenced by the seasonal fluctuations of the water table. Comparison of the remaining graphs with Figure 5-36 does not provide a good correlation between a high water table and increased hydrocarbon concentrations.

Figure 5-37 illustrates the groundwater flow pattern through OU2 during the April 2001 sampling event. Depth to water measurements and water level elevations are presented in Table 5-5. As seen in Figure 5-37, groundwater is flowing predominantly from northeast to southwest through OU2. Based on the interpreted groundwater flow vectors shown on Figure 5-37, monitoring wells NEA-MW25-1D, and NEA-MW25-2I provide good downgradient definition of the hydrocarbon plumes in the OU2 area.

### **5.8 Evaluation of Natural Attenuation Enhancements**

Monitoring well NEA-MW21-3S has historically had a layer of hydrocarbon product ranging from 0.01 foot to 1.0 foot on the water surface. A hydrophobic, hydrocarbon absorbent tube (i.e., SoakEase<sup>TM</sup>) was initially placed in well MW21-3S prior to Round 4 sampling in April 1999 to remove the hydrocarbon layer sufficiently to allow sampling. This passive method replaced the belt-skimmer in June 1999. Due to an increasing hydrocarbon layer, on June 9, 2000, the SoakEase<sup>TM</sup> was permanently replaced with a Petro-trap<sup>TM</sup> hydrocarbon removal system. The hydrocarbon trap is checked and emptied periodically. In addition, when the Petro-trap<sup>TM</sup> is emptied, the remaining hydrocarbon layer is removed with a peristaltic pump.

Between October 16, 2000, and April 24, 2001, approximately 2.1 gallons of petroleum product was recovered from well NEA-MW21-3S (Table 5-6). Sampling is conducted with a dedicated pneumatic submersible pump installed after the Petro-trap<sup>TM</sup> has been removed and residual product absorbed with a SoakEase<sup>TM</sup>.

Monitoring well WP-04-518-M has also had an intermittent thin layer of hydrocarbon product (up to 0.01 foot) on the water surface. This well has however, been sampled during each sampling round beginning with the Baseline event. Between sampling events this well is equipped with a hydrocarbon absorbent tube to recover any free product that may enter the well. It is replaced on an "as-needed" basis. Since the Baseline assessment of OU2 was conducted in the spring of 1997, a measurable amount of free product has not been recovered.

## **6.0 Basewide Long-Term Monitoring**

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Chapter 6 presents the results of the long-term groundwater monitoring for the GWOU at WPAFB, Ohio.

### **6.1 Introduction**

The April 2001 sampling event consisted of: semiannual sampling of basewide groundwater wells for VOCs in BS5, OU2, OU3, OU4, OU5, OU8, and OU10; annual sampling of basewide groundwater wells for VOCs in BS6, Spill Site 11 (FAA-B), OU8, and OU9; and annual sampling of basewide groundwater wells for inorganics (metals) in OU2, OU3, OU5, OU8, OU9, and OU10. Further information on the LTM program, including objectives, can be obtained in the October 1998, Final Long-Term Groundwater Monitoring (LTM) report (IT, 1999a).

### **6.2 Site Location and Description**

A summary of the source operable units included within the GWOU is provided in Appendix A of the EE/CA (IT, 1999b). Operable Units 2, 3, 4, 5, 7, 10, and 11 are located within Areas A & C of WPAFB (Figure 1-3). Operable Units 1, 6, 8, and 9 are located within Area B (Figure 1-4). A brief description of each is provided in the October 1998 LTM report (IT, 1999a).

As discussed in Chapter 1, the GWOU was established under the BMP to provide a comprehensive method for monitoring and evaluating the individual source areas, plume migration and the natural attenuation of contaminants. Further discussion of the BMP is provided in the October 1998 LTM report (IT, 1999a).

The specific objectives of the BMP, are presented in the *Site-Specific BMP Work Plan* (IT, 1995b)

### **6.3 Basewide LTM Groundwater Sampling**

Monitoring wells for the basewide LTM program were purged and sampled using the micropurge low flow-rate technique in accordance with the addendum to FP 5-2. Monitoring wells were purged and sampled with dedicated submersible bladder (pneumatic) or low flow electric (Grundfos®) pumps. The dedicated bladder pumps were either existing in the wells from prior sampling programs or were new pumps installed during either the Baseline sampling event (April 1998) or the October 1998 sampling. The electric pumps were existing.

### **6.3.1 Well Purging**

Monitoring wells were purged by the micropurge method in accordance with field procedure FP 5-2. Well purging was conducted in accordance with the following methodology.

The background and wellhead atmospheres at each location were screened with a photoionization detector (PID) to monitor for the presence of airborne VOCs. After VOC screening, static water levels were measured from the top of the inner casing to the nearest 0.01 foot and recorded.

The micropurge method requires a minimum purge volume of two pump and two tubing volumes. Using this method, wells are purged and sampled at a low flow rate that maintains a constant dynamic water level without removing all the stagnant water above the screened portion of the depth interval being purged. Groundwater quality was considered representative of the surrounding geologic formation when the field parameters and the pumping water level in the well had stabilized as discussed below.

Purge water was monitored in the field for the field parameters of temperature, pH, specific conductivity, dissolved oxygen, and turbidity using a Horiba® U-10 water quality meter. Oxidation-reduction potential (ORP) was monitored using an Orion® Model 250 portable meter. The meters were placed in a flow-through cell and measurements were collected every five minutes during purging until three consecutive stabilized readings were obtained. Readings were considered stabilized when the physical and chemical parameters were within the following limits:

- C pH was within " 0.2 Standard Units
- C Water temperature was consistent within " 1 degree Celsius (EC)
- C Specific conductance was consistent within " 50 microSiemens per centimeter ( $\mu\text{S}/\text{cm}$ ) for readings  $<500 \mu\text{S}/\text{cm}$ , or " 10% for specific conductance  $>500 \mu\text{S}/\text{cm}$ .

If turbidity in the purged water exceeded 25 NTUs (FP 5-4) after the above parameters were stabilized, pumping rates were reduced to the lowest possible rate and additional water was purged until the discharge water cleared. In the event that a well did not produce enough water for continued pumping and went dry, the well was sampled after it had recharged sufficiently. This procedure is consistent with Section 8.4 of FP 5-5 (Well Purging-Bailing Method). Wells that were purged dry are typically screened in unconsolidated material of low permeability or have

only a small portion of the screen intersecting the saturated zone. In either case, recharge water entering the well will be of low velocity and turbulence. Therefore, the loss of volatiles due to the cascading effect is expected to be minimal.

During future sampling events, levels of dissolved oxygen (DO) and ORP will continue to be monitored for information purposes; however, they will not be included in the stabilization criteria for WPAFB groundwater sampling. The purge logs for sample collection are presented in Appendix H and the final parameters measured just prior to sampling are summarized in Table 6-1.

Purge water was containerized, transported back to a central staging area and disposed of at a certified treatment and disposal facility. The bill of lading for purge water disposal is located in Appendix H.

Under the Basewide LTM program, groundwater samples were collected from 50 monitoring wells for semiannual VOCs analysis; from 14 monitoring wells for annual VOCs analysis; and from 21 monitoring wells for annual metals analysis. Monitoring well locations by management area are shown on Figures 6-1 through 6-9. Groundwater sampling of the basewide monitoring wells was conducted from April 9 through April 23, 2001. Sampling frequencies for selected basewide monitoring wells are specified in Table A-1 (Appendix A). The following is a list of the wells that comprise each sampling program.

**Semiannual VOC sampling:**

**BS5:** BS5 P-1, BS5 P-2, BS5 P-3, and BS5 P-4.

**OU2:** NEA-MW34-2S and NEA-MW27-3I (OU10).

**OU3:** FTA2:MW02C, LF12:MW15A, 07-520-M, 05-DM-123S, 05-DM-1231, 05-DM-123D.

**OU4:** OU4-MW-02A, OU4-MW-02B, OU4-MW-03B, OU4-MW-03C, OU4-MW-04A, OU4-MW-12B, BMP-OU4-1B-60, and BMP-OU4-1C-84.

**OU5:** CW04-060, CW05-055, CW05-85, CW07-055, CW10-055, CW15-055, TTW-02, HD-11, HD-12M, HD-12S, HD-13S, MAD-MON127 (HD-13D), MW131M (HAS-4A), MW131S (HSA-4B), and MW132S (HSA-5).

**OU8:** CW03-77.

**OU10:** OU10-MW-03S, OU10-MW-06S, OU10-MW-06D, OU10-MW-11S, OU10-MW-11D, OU10-MW-19D, OU10-MW-21S, OU10-MW-25S, GR-333, GR-334, NEA-MW37-1D, CHP4-MW01, GR-330, and 23-578-M.

**Bldg 59:** B59-MW01, B59-MW02, B59-MW03, and B59-MW04

**Annual VOC sampling:**

**BS6:** BS6 P-1 and BS6 P-2.

**FAA-B:** SP11-MW01, SP11-MW02, SP11-MW03, SP11-MW07, SP11-MW08, SP11-MW09, and EFDZ2-MW03.

**OU8:** OU8-MW-02S, P6-1, and P6-2.

**OU9:** EFD04-MW06 and EFD09-M575.

**Annual Metals sampling:**

**OU2:** 14-554-M, NEA-MW01-1S, NEA-MW02-2S, NEA-MW20-2S, NEA-MW23-2S, NEA-MW24-2S, and NEA-MW31-3S.

**OU3:** 07-520-M

**OU5:** HD-11 (sampled in place of CW15-055).

**OU8:** OU8-MW-02D and OU8-MW23D.

**OU9:** P4-2, EFDZ3-MW02, EFDZ3-MW03, and EFDZ8-MW01.

**OU10:** OU10-MW10I, 25-582-M, 25-583-M, 25-584-M, OU10-MW03S, and OU10-MW-06S.

Table A-1 (Appendix A) presents the monitoring frequency, sampling months, analytical parameters and other sampling rationale for all groundwater and leachate sampling locations monitored under the LTM program. This is a dynamic table that may contain small variations in the LTM monitoring network between sampling events. These variations (typically additions) to the LTM monitoring network are the result of data evaluations from previous rounds and incorporating monitoring wells from completed projects (Building 59 Site Investigation). Well CW15-055, which is sampled annually for inorganics, was sampled inadvertently for only VOCs during the April 2001 event. Well HD-11, was sampled for metals in place of CW15-055 for this

round. Monitoring well TTW-02 (deep), at OU5, was sampled for VOCs for this event only to help define the extent of VOCs contamination west of the extraction well. In addition to the Basewide LTM program wells, sampling of three of the Building 59 wells was also conducted during the April 2001 sampling event to monitor for TCE contamination.

### **6.3.2 Groundwater Sampling Methods**

Immediately after purging, groundwater samples were collected following field procedure FP 6-5 using the same dedicated pumps. The OSL provided new, certified clean and prepreserved sample containers (VOA vials). Groundwater samples for VOC and total metals analyses were collected by filling each sample container directly from the dedicated Teflon<sup>®</sup>-lined discharge tubes for each well. Dissolved metals samples were collected in accordance with field procedure FP 6-8 by connecting a 2-micron filter cartridge to the discharge tubing, then purging the cartridge for approximately one minute prior to sampling. Samples were collected directly from the filter cartridge. Samples for total and dissolved metals analysis were preserved after filling and were field checked to ensure the pH was less than 2 by pouring a small amount of sample out of the container onto pH paper. VOC samples were not checked for pH to preserve the zero headspace of the filled VOC vials.

After collection, samples were placed on ice in a cooler and maintained at 4EC until shipped to the OSL. Generally, samples were shipped the day of collection, however, in some cases, samples were held overnight in a secured sample cooler for shipment the next day. Samples were shipped by overnight carrier to the Severn Trent Laboratory (STL) (formerly Quanterra Laboratory) in North Canton, Ohio.

### **6.3.3 Sample Management**

Groundwater samples for OSL VOC and total and dissolved metals analysis were preserved, collected, and handled in accordance with Section 4.0 of Volume 1 and FP 6-12 of Volume 2, Appendix C of the Project Work Plan (ES, 1990b). Each sample was designated with a unique sample number, which identified the location and type of sample collected. The sample number format is as follows:

- LTM – Basewide monitoring wells sampled under the Long-Term Monitoring Program.

- Sample Location Identification - Each location is identified by a unique designation. The following designators were used to show the location of each well: “OU” (Operable Unit), “LF” (Landfill), “CHP” (Central Heating Plant), “WP” (Wright-Patterson), “NEA” (Northeast Area), “EFDZ” (Earthfill Disposal Zone), “xx-0yy-M” Phase 2, Stage 1; site No.-well No., “xx-5yy-M” Phase 2, Stage 2; site No.-well No., “CW” OU5 off-site well, “GR” US Geological Survey, “SP11” (Spill Site 11, [FAA-B]), and “B59” (Building 59).
- Groundwater Sampling Event Number - An alphanumeric code was used to identify the sampling event when the sample was collected. The following designator was used during this task: “-0401” (indicates the April 2001 sampling event under the LTM program).
- Additional designators for QA/QC use - Duplicate samples were identified with “5” preceding the sampling event designator. Matrix Spike and Matrix Spike Duplicates had “MS” and “MSD,” respectively, appended after the well number.

For example, a complete sample identification number for a groundwater sample collected from monitoring well No. 1 at Heating Plant 4 during the first round of sampling would be as follows: LTM-CHP4-MW01-0401. Note that the Baseline samples collected for the Basewide LTM under the BMP project in April 1998 had the sample prefix “ROD” for Record of Decision and the suffix “GW01” representing the first sampling event under the Basewide ROD.

Groundwater samples were analyzed for VOCs by EPA Method 8260B with the additional reporting of methyl tert-butyl ether (MTBE). Originally, EPA Method 8260 was specified for VOCs analysis for the Baseline Basewide Monitoring in April 1998 (IT, 1999c). However, it was determined that Method 8260 could not achieve the low detection limits required for some of the OU1 parameters and vinyl chloride. EPA Method 524.2 for drinking water, replaced Method 8260 for all VOCs analysis to achieve the lower detection limits. Using this method required the primary laboratory (Severn Trent, North Canton, Ohio) to ship samples off to an affiliate laboratory for analysis. Subsequently, Method 8260B was developed which does achieve the lower detection limits and samples can be analyzed at the primary laboratory, which has improved reporting time and cost. Method 8260B will be used for VOCs analysis for all subsequent sampling events.

As a check on the quality of field activities (including sample collection, containerization, shipping, and handling), trip blanks, ambient blanks, and field duplicates were collected with specified frequencies following the PWP guidelines. The frequency with which these samples

were taken, and number of such samples, are discussed in Section 2.2.3. Sampling equipment (pumps and discharge tubing) is dedicated for each well; therefore, equipment rinsate samples were not required.

#### **6.3.4 Sample Handling**

Samples were handled in accordance with procedures in Section 5.11.3 of Volume 1 and FP 6-12 of Volume 2, Appendix C of the Project Work Plan. The Field Team Leaders entered sample numbers, descriptions and other pertinent information into field logbooks. In addition, CofC records were completed for each sample. CofC records contain sample numbers, date and time of collection, container types and volumes, preservatives and analytical parameters. CofC records for the April 2001 Basewide LTM sampling event are presented in Appendix I.

All samples were maintained under direct control of the sampling team members or Site Coordinator until custody was transferred to the overnight freight carrier. While in transit, samples were placed in coolers with custody seals to ensure against tampering.

#### **6.3.5 Sample Containers and Preservation**

Sample containers used for OSL VOC analysis were 3, 40 ml VOA vials with Teflon<sup>®</sup>-lined septum caps, prepreserved with hydrochloric acid provided by the OSL (STL). Total and dissolved metals samples were collected in 1-liter polyethylene bottles. Samples were preserved with nitric acid in the field. All containers were labeled with the sample number; collector's initials, date and time of collection, location of sampling point, preservatives added and analytical parameters requested. All samples for chemical analysis were kept at a maximum 4EC by placing the sample containers on ice in insulated coolers until relinquished to FEDEX<sup>®</sup>.

#### **6.3.6 Project Generated Wastes**

Wastewater generated during the investigation consisted of monitoring well purge water.

Wastewater generated during the field activities was pumped into 55-gallon drums on the back of each field sampling truck. After filling, the drums then were pumped into two 750-gallon storage tanks staged in the contractor parking lot near OU4. Approximately 650 gallons of wastewater were generated during the April 2001 LTM field activities which included sampling of three monitoring wells at Building 59 in Area B as part of a separate Site Investigation (IT, 1999f). The wastewater was transported by vacuum tank-truck to a certified treatment and disposal facility (Perma-Fix of Dayton). The WPAFB LTM purge water shipping document is included in

Appendix H. Purge waters are being shipped under a waste profile previously defined by this waste stream.

### **6.3.7 Procedure Variances**

The only variance to the task SOW was the use of the existing dedicated Grundfos® electric submersible pumps in wells GR-333, GR-334 and FTA2: MW02C in place of installing new bladder pumps. The pumps and fixtures in these wells appeared to be permanently attached and were left in-place.

## **6.4 Analytical Results**

### **6.4.1 VOCs**

The April 2001 VOCs analytical results from the Basewide LTM sampling are presented in Table 6-2 by area, along with historical groundwater analytical data for each well. Figures 6-10 through 6-18 present the detected concentrations of VOCs for each management area (concentrations exceeding MCLs are denoted in red). The April 2001 laboratory data for VOCs analysis are presented in Appendix J in “detects only” and “all data” formats. Case narrative data summaries for each sample delivery group are also presented in Appendix J.

As defined in the EE/CA, the remediation goal for organic contaminants of concern (benzene; ethylbenzene; xylenes; toluene; 1,2-DCA; 1,2-DCE; TCE; vinyl chloride; and PCE) is the MCL for each constituent. Detected concentrations exceeding the MCLs in Table 6-2 are denoted with “( ).” The maximum detected concentration of TCE (150 µg/L) in April 2001 sampling was found in well B59-MW03 (Building 59). The maximum detected concentration of vinyl chloride (120 µg/L) was found in well SP11-MW03 (FAA-B). PCE was detected at a maximum detected concentration of 19 µg/L in two wells, BS5 P-3 (BS5) and OU10-MW-25S (OU10).

### **6.4.2 Metals**

The April 2001 Basewide LTM sampling analytical results for dissolved metals are presented in Table 6-3. The April 2001 LTM sampling analytical results for total metals for each management area are presented in Tables 6-4 through 6-7 along with historical groundwater analytical data for each well. Table 6-8 presents a summary of the April 2001 total metals analytical data. Figures 6-19 through 6-24 present the total concentrations for metals of concern for each management area. The April 2001 laboratory data for metals analysis are presented in Appendix

K in “detects only” and “all data” formats. Case narrative data summaries for each sample delivery group are also presented in Appendix K.

As defined in the EE/CA (IT, 1999b); remediation goals (RGs) for metals of concern were determined by the aquifer layer and aquifer material characteristics. Concentrations of total and dissolved metals of concern that exceed an RG are denoted with “( )” in the tables and are red in the figures. Total and dissolved metals concentrations exceeding RGs are seen in OU8 (manganese, Figure 6-22), and OU9 (nickel, Figure 6-24). OU2 is the only area that has total metals only exceeding an RG (total chromium, Figure 6-19).

### **6.5 Data Evaluation**

The following sections discuss the analytical results from the Basewide LTM sampling for each area. For wells that have a history of VOCs above MCLs, a discussion of the historic trend in concentrations is presented. Table 6-2 presents a summary of the Basewide LTM and historic groundwater analytical data for wells that have a history of exceeding VOC MCLs. Figures 6-25 through 6-57 present graphs of the groundwater analytical data collected through April 2001 for each well where chemicals of primary concern were detected. Each graph also has the MCL displayed in the legend for VOCs of concern detected at that well location. The following discussion provides a general evaluation of the VOC contaminant trends and the detected metals for each management area.

#### **BS5**

As seen in Figure 6-18, groundwater monitoring at BS5 is conducted at two areas. The monitoring well pair BS5 P-1 and P-2 bracket an area close to the museum runway. TCE and PCE concentrations in this area (Figure 6-25) are below MCLs (5 µg/L) or were not detected (BS5 P-2). The other area of concern is at the BS5 P-3 and P-4 well cluster. As seen in Table 6-2, TCE has historically only been detected in estimated concentrations ranging from 0.19 to 0.39 µg/L. Historically, PCE concentrations were the highest in November 1998 and since then have decreased to 19 µg/L and 17 µg/L, in wells BS5 P-3 and P-4, respectively. Historical PCE and TCE concentrations are shown graphically on Figure 6-26.

#### **BS6**

VOCs were not detected at BS6 during the April 2001 annual sampling round (Table 6-2). During all previous sampling rounds, all detected VOCs were below MCLs (Figure 6-27).

## ***OU2***

As seen in Figure 6-28, the detected PCE concentration in well NEA-MW27-3I (16 µg/L) was above the MCL (5 µg/L). PCE concentrations in this well decreased from one year ago (23 µg/L) but still remain consistent with previous historic concentrations. VOCs were not detected in well NEA-MW34-2S during the April 2001 sampling round. Historically, this well has had only one VOC detection in the last eight years. TCE was detected, at 15 µg/L, in December 1992 (Figure 6-28). As seen in Table 6-7, the Layer 1 "Outwash" aquifer RG for total chromium (100 µg/L) was exceeded at well NEA-MW24-2S (740 µg/L). All other detected metals concentrations were below their respective RGs.

## ***OU3***

For the April 2001 sampling event, all detected VOCs were below MCLs (Figures 6-29 through 6-31). Historically, both TCE and total 1,2-DCE have been detected at low concentrations in wells LF12:MW15A, 05-DM-123S-M, and 05-DM-123I-M. Only in July 1993 did the concentration of TCE exceed the MCL (5µg/L) at LF12:MW15A (12.11 µg/L). Well 07-520-M had 1,2-DCE detected at estimated concentrations ranging from 0.21 to 0.37 µg/L in 1994, 1998, October 2000 and April 2001. All detected metals concentrations for OU3 well 07-520-M were below the associated RGs (Table 6-3 and 6-8).

## ***OU4***

During the April 2001 sampling event, TCE concentrations exceeded the MCL at four locations (Figures 6-32 through 6-35). TCE concentrations exceeding the MCL ranged from 6.3 µg/L (OU4-MW-03C) to 12 µg/L (OU4-MW-02B). Historically, four wells (OU4-MW-02B, OU4-MW-03B, OU4-MW-03C, and OU4-MW-12B) consistently have had TCE concentrations above or near the MCL (5 µg/L). The highest concentrations of TCE were detected in 1993 in all four wells. PCE was detected above the MCL at well OU4-MW-12B (5.7 µg/L). PCE has never been detected in any of the other wells at OU4. Since 1998, total 1,2-DCE has been detected at varying concentrations ranging up to 9.7 µg/L in well OU4-MW-02A (Table 6-2). Currently, the highest concentrations of total 1,2-DCE occur in well OU4-MW-02A (6.2 µg/L) and downgradient well BMP-OU4-1B-60 (2.9 µg/L) (Figure 6-12). All detected concentrations of total 1,2-DCE at OU4 have been below the MCL of 70 µg/L. Metals were not analyzed at OU4.

### ***OU5***

TCE was detected at seven of the ten OU5 sampling locations and concentrations exceeded the MCL at five wells during the April 2001 sampling event (Figures 6-36 through 6-42). TCE concentrations exceeding the MCL ranged from 7 µg/L (HD-11) to 67 µg/L (CW05-085). Historically, wells CW-05-085 and HD-11 have had the highest concentrations of TCE of the OU5 wells. PCE was detected at only three wells (HD-12S, MW132-S and MW131-S) all at concentrations below the MCL. Historically, these wells have had detections of PCE since at least 1993, and wells HD-12S and MW132-S had detections over the MCL last year (Table 6-2). As seen in Figure 6-13, vinyl chloride was detected at four wells CW05-055 (2.0 µg/L), CW05-085 (0.39 µg/L), HD-13S (1.9 µg/L) and MW131-M (12 µg/L). MW131-M has had vinyl chloride concentrations exceeding the MCL (2 µg/L) since 1996 with the highest detection, 22 µg/L, in April 1999 (Table 6-2). Total 1,2-DCE has been detected consistently in eight wells since at least 1998. However, 1994 was the last time the 1,2-DCE concentrations exceeded the MCL (70 µg/L). Well MAD-MON127 (HD-13D) was sampled for the first time last year and this well has consistently had detections of 1,2-DCA and total 1,2-DCE at concentrations below the MCLs over the last three sampling events. New well TTW-02 Deep was sampled under the LTM program for the first time during the April 2001 sampling event. The VOCs, 1,2-DCE (45 µg/L, below the MCL) and TCE (16 µg/L, above the MCL) were detected in this well. Well CW07-055 was sampled for the first time since 1998 and no chemicals of concern were detected. In addition, wells CW10-055 and CW15-055 were sampled for the first time since 1994. As seen in Figures 6-37 and 6-38, TCE was detected in well CW10-055 (1.0 µg/L) and ethylbenzene was detected in well CW15-055 (0.46 µg/L).

Normally, metals are analyzed at only one OU5 well, CW15-055, however, this well was sampled for VOCs during the April 2001 sampling event to monitor for potential downgradient contaminant migration from LF5. Well HD-11 was sampled for total metals only in place of CW15-055. Total aluminum and manganese were detected in HD-11 at concentrations of 360 µg/L and 100 µg/L, respectively (Figure 6-21). Both concentrations were below their respective RGs (960 and 134 µg/L).

### ***OU8***

All detected VOCs were below MCLs, during the April 2001 sampling event (Figures 6-43 and 6-44). Historically, VOCs have not been detected above the MCLs since vinyl chloride in 1995, TCE in 1994 and benzene in 1991. Metals analyses were conducted at two OU8 wells,

OU8-MW-02D and OU8-MW23D. The RG for manganese (134 µg/L) was exceeded in well OU8-MW-02D at total and dissolved metals concentrations of 190 µg/L and 170 µg/L, respectively. Manganese was also detected at well OU8-MW-23D (130 µg/L) at a concentration just below the RG.

### ***OU9***

As seen in Figure 6-45, vinyl chloride was detected in well EFD09-M575 at a concentration of 1.6 µg/L. This is the first time vinyl chloride was below the MCL (2 µg/L) since October 1994. During the April 2001 sampling event, 1,2-DCA was detected at a concentration above the MCL (5 µg/L) in well EFD04-MW06 (12 µg/L) for the first time since October 1994. The remaining detected VOCs in both wells were below MCLs (Table 6-2). Four wells were sampled for metals analysis. During the April 2001 sampling event, elevated levels of nickel were detected in well EFDZ08-MW01 at a dissolved concentration of 190 µg/L and a total concentration of 280 µg/L, both of which exceeded the Layer 1 "Hill" aquifer RG of 119 µg/L. All other detected metals concentrations were below their respective RGs. As seen in Table 6-8, well EFDZ10-MW02 had a detection of total chromium (120 µg/L) that was above the MCL (100 µg/L) but below the RG (309 µg/L).

### ***OU10 (CHP4)***

Figures 6-46 and 6-47 present TCE and PCE results for the three OU10 (CHP4) sampling locations for the April 2001 sampling event. TCE concentrations exceeded the MCL at well 23-578-M with a result of 15 µg/L. TCE has been detected at concentrations over the MCL at this well during most of the previous events since 1993. PCE concentrations exceeded the MCL at wells GR-330 (5.5 µg/L) and CHP4-MW01 (11 µg/L). GR-330 has had PCE detected at concentrations consistently above the MCL since 1993 with the highest concentration at 43 µg/L in April 1998. Well CHP4-MW01 has had consistent detections of PCE since 1995, however, the last time PCE was detected above the MCL was in 1995.

### ***OU10***

TCE concentrations exceeded the MCL at two of the eleven sampling locations during the April 2001 sampling event (Figures 6-48 through 6-53). TCE concentrations exceeded the MCL at OU10-MW-06S (8.9 µg/L) and OU10-MW-21S (6.3 µg/L). These wells have had TCE detections consistently above the MCL since at least 1995 (Table 6-2). PCE concentrations exceeded the

MCL at three of the eleven sampling locations. PCE concentrations exceeded the MCL at OU10-MW-03S (7.9 µg/L), OU10-MW-11S (9.7 µg/L), and OU10-MW-25S (19 µg/L). Historically, PCE concentrations have exceeded the MCL consistently in these three wells since 1994. Metals were analyzed at six OU10 wells. All metals concentrations were below the RGs (Table 6-6).

### ***FAA-B***

As seen in Figures 6-54 and 6-57, vinyl chloride concentrations exceeded the MCL (2 µg/L) at five of the seven monitoring wells sampled during the April 2001 sampling event. Vinyl chloride concentrations exceeding the MCL ranged from 4 µg/L at SP11-MW09 to 120 µg/L at SP11-MW03 (Figure 6-16). Historically, vinyl chloride has been detected consistently above the MCL in wells SP11-MW01 and SP11-MW03 since 1995, with the highest concentrations for both seen last year in the April 2000 sampling round (Table 6-2). Wells SP11-MW07, MW08 and MW09 have also had consistent detections of vinyl chloride since they were installed in October 1999. TCE was detected above the MCL in SP11-MW03 (74 µg/L) and SP11-MW07 (57 µg/L). In addition, total 1,2-DCE was detected above the MCL (70 µg/L) in SP11-MW03 (175.2 µg/L) and SP11-MW07 (596 µg/L). These two wells, SP11-MW03 and MW07, had vinyl chloride, TCE and total 1,2-DCE concentrations that exceeded the calibration limit and the samples were diluted by a factor of 10 and 20, respectively. Two wells, SP11-MW07 and SP11-MW09, were sampled for the first time since October 1999 during this April 2001 sampling event. The remaining detected VOCs were below MCLs in all seven wells (Table 6-2). FAA-B wells were not analyzed for metals during this sampling event.

### ***Building 59 Sampling for VOCs***

To monitor the VOC concentrations in groundwater at the former Building 59 site, four monitoring wells have been added to the semiannual sampling program (Figure 6-58). These wells will continue to be sampled semi-annually in April and October. The suspected source of the contamination (sludge from the sumps and the oil/water separator) was removed over the period of March 24 through April 7, 1999. After the building removal was complete, the site was back-filled with soil, re-graded and paved in March 2001. During the April 2001 sampling event, two wells had detections of TCE, 1,2-DCE and vinyl chloride above their respective MCLs (Figure 6-58). Well B59-MW02 had elevated concentrations of TCE (43 µg/L), 1,2-DCE (111.9 µg/L) and vinyl chloride (14 µg/L). Historically, 1,2-DCE and vinyl chloride have been detected consistently above the MCL in this well since it was installed in October 1998, with the highest

concentrations seen in April 1999 (Table 6-2). TCE has been consistently detected above the MCL since April 1999 in B59-MW02 with the highest concentration occurring during the April 2000 sampling event. Well B59-MW03 also had elevated concentrations of TCE (150 µg/L), 1,2-DCE (333 µg/L) and vinyl chloride (39 µg/L). Historically, TCE, 1,2-DCE and vinyl chloride have been detected consistently above the MCL in this well since October 1998, with the highest concentrations seen in April 1999 (Table 6-2). Both of these wells also had concentrations that exceeded the calibration limit and the samples were diluted by a factor of 5 for B59-MW02 and a factor of 14.39 for B59-MW03. VOCs were not detected in B59-MW01 during the April 2001 sampling event. Well B59-MW04 was not sampled because the wellhead was damaged during the Building 59 demolition in March 2001. This well was repaired in August 2001.

## 7.0 Basewide Groundwater Operable Unit Evaluation

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This chapter presents a site-wide evaluation of LTM results for the April 2001 sampling event. The LTM results are compared to the concentration data collected during the RI activities (IT, 1997d) and previous LTM events. These comparisons were used to identify noticeable trends in contaminant concentrations across the site.

### 7.1 VOC Analytical Findings

The following discussion presents the observations of the basewide groundwater operable unit evaluation for the April 2001 LTM event. These findings are discussed by contaminant for the following organic compounds: TCE, PCE, 1,2-DCE, 1,2-DCA, vinyl chloride, benzene, toluene, ethylbenzene, and xylene. The current and historical findings were compared to evaluate whether there exists:

- C Discernable differences in the distribution of VOC detections between the two periods
- C Discernable differences in distributions of VOC concentrations between the two periods.

#### 7.1.1 TCE

On the Basewide scale, TCE concentrations remained consistent with previous sampling rounds. The TCE degradation products, 1,2-DCE and to a lesser extent vinyl chloride, continue to be detected at locations with TCE contamination. However, the TCE degradation product of 1,2-DCA is only detected at isolated locations.

In April 2001, TCE was not detected at BS5 and BS6. Since June 1997, TCE has either not been detected at BS5 and BS6, or it has been detected at estimated concentrations below the reporting limit. At OU2 and OU3, TCE has either not been detected or was detected below the MCL (5 µg/L) in most samples since the 1992 and 1993 sampling events.

At OU4, OU8, and OU9, the April 2001 TCE concentrations remained consistent with previous sampling rounds and RI sampling events. TCE concentrations remain above the MCL at OU4 in wells MW-02B, MW-03B, MW-03C and MW-12B (Figure 7-1). The TCE concentration trend is generally decreasing.

At FAA-B, TCE concentrations increased from last year in well SP11-MW03 from 46 µg/L to 74 µg/L. TCE concentrations also increased in well SP11-MW07 from 7.9 µg/L in October 1999, the last time this well was sampled, to 57 µg/L in April 2001. This well had not been sampled since the in-situ oxidation treatability test was completed at FAA-B. TCE was not detected or was detected below the MCL at the remaining FAA-B wells.

At OU5, TCE concentrations increased from last year in monitoring well CW05-055 from 1.8 µg/L to 13 µg/L. In well MW131, TCE was not detected for the first time since 1992. Well TTW-02 Deep was sampled under the LTM program for the first time since it was installed in April 2000. TCE was detected in TTW-02 Deep at a concentration of 16 µg/L. TCE concentrations in the remaining OU5 wells are consistent with previous sampling rounds. TCE concentrations are above the MCL at wells CW05-055, CW05-085, HD-11, MW132S and TTW-02 Deep (Figure 7-2).

TCE concentrations at the OU10 wells remained consistent with previous sampling rounds. Concentrations are generally decreasing or remaining relatively unchanged since the RI sample results. TCE concentrations remain above the MCL in two of the eleven sample locations (Figure 7-3). TCE was not detected at six locations. At OU10/CHP4, well 23-578-M, the TCE concentration remained consistent with the previous sampling event. TCE concentrations were either not detected or detected at estimated concentrations below the reporting limit at the other two wells in this area (Figure 7-4).

The highest TCE concentration detected during the April 2001 sampling event was at Building 59, well B59-MW03 (150 µg/L). TCE was also detected in well B59-MW02 at a concentration of 43 µg/L. Since the TCE source was recently removed from this area, the TCE concentrations are expected to decrease over time.

### **7.1.2 PCE**

The basewide PCE concentrations for April 2001 generally remained consistent with the October 2000 levels (Table 6-2). The areas that continue to have PCE concentrations exceeding the MCL (5 µg/L) include BS5, OU2, OU4 and OU10. In general, PCE concentrations have been consistent since the Baseline sampling event with the exception of OU5 where detected PCE concentrations have since dropped below the MCL.

Figures 7-2, 7-3, 7-5 and 7-6 show the approximate PCE plume locations during the April 2001 sampling event for OU5, OU10, OU10/CHP4 and BS5, respectively. PCE is plotted together with TCE on Figures 7-2 and 7-3 to illustrate the downgradient degradation of PCE to TCE.

### **7.1.3 1,2-DCA**

1,2-DCA was detected in only three Base monitoring wells. In two of these wells (HD13D and B59-MW02), the detected concentrations (3.0 and 3.6 µg/L respectively) were below the MCL (5 µg/L). At EFDZ4-MW06, 1,2-DCA was detected at a concentration of 12 µg/L. 1,2-DCA had previously been detected above the MCL in this well during the 1994 RI at a concentration of 14 µg/L. 1,2-DCA has either never been detected or has been sporadically detected at concentrations below the MCL in the remaining LTM wells with the exception of B59-MW03 which had a detection of 13 µg/L in April 1999.

### **7.1.4 1,2-DCE**

During the April 2001 sampling event, total 1,2-DCE was detected at concentrations above the MCL (70 µg/L) at two management areas of the Base, FAA-B and B59. At FAA-B, total 1,2-DCE was detected above the MCL at wells SP11-MW03 (175.2 µg/L) and SP11-MW07 (596 µg/L). Other wells at area FAA-B had detected concentrations ranging from 0.18 µg/L to 28.1 µg/L. At Building 59, wells B59-MW02 (111.9 µg/L) and B59-MW03 (333 µg/L) had detections above the MCL. These two wells have historically had detections of 1,2-DCE above the MCL since October 1998 (Table 6-2). Total 1,2-DCE was detected at concentrations below 6.8 µg/L at areas OU3, OU4, OU8 and OU9. Detected total 1,2-DCE concentrations at OU5 (FAA-A) ranged from 1.2 µg/L to 45 µg/L. Total 1,2-DCE was not detected in samples from other areas of the Base (BS5, BS6, OU2 and OU10).

### **7.1.5 Vinyl Chloride**

Vinyl chloride was detected in samples from OU4 (one well), OU5 (four wells), OU9 (one well), FAA-B (six wells) and B59 (two wells). Three of these areas had vinyl chloride detected at concentrations above the MCL (2 µg/L). At OU5, vinyl chloride was detected at or above the MCL at wells CW05-055 (2 µg/L) and MW131M (12 µg/L). In FAA-B, five wells had vinyl chloride concentrations exceeding the MCL, SP11-MW01 (17 µg/L) and SP11-MW03 (120 µg/L) SP11-MW07 (54 µg/L), SP11-MW08 (11 µg/L) and SP11-MW09 (4 µg/L). All five of these wells have historically had detections above the MCL (Table 6-2). At Building 59, two wells had

vinyl chloride concentrations above the MCL, B59-MW02 (14 µg/L) and B59-MW03 (39 µg/L) and these wells have historically had detections above the MCL since 1998. Vinyl chloride was not detected in samples from other areas of the base. Most of the well locations that had vinyl chloride detected during the April 2001 sampling event have had a history of some vinyl chloride contamination.

Figures 7-2 and 7-7 illustrate the vinyl chloride concentrations in groundwater at OU5 and FAA-B, respectively.

#### **7.1.6 Benzene**

Benzene was detected at only one Base well SP11-MW08 (FAA-B) at an estimated concentration of 0.41 µg/L. Benzene was not detected in any other Basewide LTM samples collected during the April 2001 event. A discussion on benzene and other hydrocarbon compounds detected at OU2 during the April 2001 sampling event is presented in Section 5.0.

#### **7.1.7 Summary**

The analytical data from the April 2001 LTM sampling event indicate that the concentrations of TCE, PCE, 1,2-DCE, and vinyl chloride in groundwater are staying consistent with the Baseline event in April 1998. At the majority of wells where VOC concentrations increased from last year, the increase was between 0.1-2 µg/L.

#### **Spill Site 11 (FAA-B)**

Spill Site 11 (FAA-B) however, shows a trend of increasing VOC concentrations. Wells SP11-MW03 and SP11-MW07 currently show the highest concentrations of TCE and 1,2-DCE historically detected in this area. Additionally, these data indicate that the locations of known organic plumes are generally stable, as significant down-gradient movement of organics has not been observed. The increased VOC concentrations at FAA-B may be related to the in-situ treatability test conducted in October 1999 (IT, 2000d).

The treatability test at FAA-B was conducted from October 26 through October 29, 1999. The test consisted of injecting Fenton's Reagent, a combination of hydrogen peroxide and a catalyst (ferrous iron), into the contaminated saturated zone of the water table aquifer. Injection points for the test were comprised of eight injection wells, one vent well and two monitoring wells (SP11-MW03 and -MW07 (Figure 6-16a). Three rounds of baseline (pre-injection) groundwater

sampling were conducted in wells SP11-MW03 and -MW07 to establish pretreatment VOC concentrations in the center of the VOC plume. The last pre-injection sampling results are presented in Table 6-2. After the application of the treatment, three subsequent (post-injection) samples were collected from wells SP11-MW03 and -MW07. The last post-injection sampling results are presented in Table 6-2. As seen in the post-injection results for well SP11-MW03, the vinyl chloride did reduce by less than half of the pre-injection concentration however, total 1,2-DCE increased from 5 µg/L to 36 µg/L. At well SP11-MW07, the concentration of vinyl chloride decreased from 25 to 5.4 µg/L while the concentrations of total 1,2-DCE increased from 170 to 437 µg/L, and TCE increased from 7.9 to 61.7 µg/L.

Well SP11-MW07 is located adjacent to the cement pad at Facility 92, the drum storage area. This location appears to be the center of the VOC plume and the increase in some of the VOC concentrations after the treatment application may have been due to the release of residual contamination from the subsurface clays. Soil from around well SP11-MW07 was removed in October 2000 and replaced with clean gravel. Continuing annual long-term monitoring will identify any trends in the contaminant concentrations.

## **OU5**

The historic and current analytical data presented in Table 6-2 indicate the near steady state PCE and TCE concentrations in well MW132S since 1992. In the EW-1 plumes, the PCE and TCE concentrations have been decreasing in the wells closest to MW132S (MW131S and MW131M). At well MW131S, the total PCE and TCE concentration has been reduced from 36 µg/L in 1992 to 2.8 µg/L in April 2001. At well MW131M, PCE has never been detected, and TCE was below the detection limit for the first time during the April 2001 sampling event. These trends indicate the extent of the capture area of EW-1 and the effectiveness of the groundwater treatment system at LF5. The vicinity of well MW132S however, appears to be outside of the EW-1 capture zone and VOC concentrations are not being affected.

## **7.2 Inorganic Analytical Findings**

The following section presents an evaluation of the April 2001 LTM event inorganic sampling results. The April results for total metals are compared to historical total metal concentrations (Tables 6-4 through 6-7). Table 6-8 presents a summary of the April 2001 LTM total (unfiltered) metal sampling results only. Dissolved (filtered) metals results from the April 2001 LTM sampling event (Table 6-3) are also discussed in each section. The current and historic findings

are compared to evaluate whether there is evidence of contamination exceeding action levels and whether elevated concentrations can be attributed to soil particles in unfiltered samples.

### **7.2.1 OU2**

During the April 2001 sampling at OU2, only total chromium in well NEA-MW24-2S (740 µg/L) was detected at a concentration above the RG (100 µg/L) (Table 6-7). During the April 2000 event, the only metal detected above the RG was nickel. During the April 1999 event, nickel and chromium were both detected above the RGs. No inorganic COCs were detected above RGs during the April 1998 event. The remaining inorganics were either not detected or were detected below RGs in all LTM samples (April 1998, 1999, 2000 and 2001).

The dissolved chromium concentration at well NEA-MW24-2S (92 µg/L) was below the RG. The total chromium concentration was over eight times that of the filtered sample. This indicates that the elevated concentrations in unfiltered samples may be attributed to soil particles in samples rather than contaminants being present in the mobile dissolved phase or colloids. LTM inorganic data can not confirm the metals contamination that was suspected based on RI data.

### **7.2.2 OU5 and OU8**

At OU5 and OU8, only total manganese in well OU8-MW-02D (190 µg/L) was detected at a concentration above an RG (134 µg/L). Also, aluminum was detected below the RG in well OU8-MW-02D for the first time since 1995. Zinc was not detected. Well CW15-055, which is normally sampled for inorganics, was sampled for VOCs only during the April 2001 event to monitor for potential contaminant migration. Well HD-11, was sampled for total metals in place of CW15-055 for this round. All total metals detected in well HD-11 were below their respective RGs. Vanadium has never been detected during the LTM sampling rounds.

The April 2001 total and dissolved manganese concentrations in well OU8-MW-02D (190 and 170 µg/L, respectively) were also over the RG (134 µg/L). In addition, OU8-MW-23D had the exact same concentration for total and dissolved manganese (130 µg/L). The similar total and dissolved concentrations of manganese in this area indicate that this contaminant is present in the mobile dissolved phase rather than in suspended soil particles.

### **7.2.3 OU9**

Of the inorganic COCs monitored at OU9 (Table 6-5), nickel was detected above the RG

(119 µg/L) in both the dissolved (190 µg/L) and total (280 µg/L) samples from EFDZ8-MW01. This was also true for the April 1999 and 2000 sampling rounds. However, the total nickel concentration in the sample collected in April 1998 was below the RG. Dissolved nickel was not detected.

All other total and dissolved metals were either not detected or were detected below RGs. With the exception of recent nickel concentrations that continue to exceed the RG, the metals contamination initially detected in the OU9 RI groundwater sampling has not been present in subsequent sampling events.

#### **7.2.4 OU10**

All inorganic COCs monitored at OU10 (Table 6-6) were detected below the associated RGs for the current and all previous LTM sampling rounds. The metals contamination initially detected in the OU10 RI groundwater sampling has not been present in subsequent sampling events.

## 8.0 References

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**Table 2-1**  
**OU1 Remedial Action Groundwater Quality Monitoring**  
**Sample Handling Criteria**  
**Wright-Patterson AFB, Ohio**

Parameter	Analytical Method <sup>1</sup>	Sampling Frequency	Container	Sample Preservative	Holding Time
Volatiles	EPA 8260B	Quarterly	Three x 40-ml glass vials, no headspace, teflon-lined septum cap	HCl to pH # 2; Store @ 4EC	Analyze within 14 days
Metals	EPA 200	Quarterly	One 1 liter polyethylene bottle	HNO <sup>3</sup> to pH # 2 Store @ 4EC Field-filter (FP 6-8)	6 months
Semi-Volatiles		Annually	Two x 1 amber glass container, Teflon-lined cap	Store @ 4EC	Extract within 7 days; analyze within 40 days after extraction
Dioxin/Furans		Annually	Two x 1 liter amber glass bottle, Teflon-lined cap	Store @ 4EC	Extract within 1 year; analyze within 90 days after extraction
Pest/PCBs		Annually	One x 1 liter amber	Field-filter (FP 6-8) Store @ 4EC	Extract within 14 days; 40 days to analyze
Ammonia		Annually	One x 500 ml poly	H <sub>2</sub> SO <sub>4</sub> to pH # 12 Store @ 4EC	Analyze within 28 days
Cyanide		Annually	One x 500 ml poly	NaOH to pH > 12 Store @ 4EC	Analyze within 14 days
Extra Extractable		Annually	One x 1 liter amber	Store @ 4EC	

<sup>1</sup> Analytical methods per OU1 Final Operations and Maintenance Plan or similar – Part 4, Kelchner, 1997.

**Table 2-2**  
**OU1 Monitoring Well Sampling**  
**Field Parameters: April 2001**  
**Wright-Patterson AFB, Ohio**  
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Well Number	Date Sampled	Static Water Level (ft, TOC)	Temp. (C°)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mv)	DO (mg/L)	Well Went Dry (Y/N)
<b>Landfill 8</b>									
LF08-MW02C	10/12/99	12.96	14.7	7.15	0.933	20	-42.8	5.96	N
	10/13/00	13.05	14.3	7.28	1.050	3	129.5	2.51	N
	4/23/01	13.72	14.0	7.20	0.858	0	-97.4	2.73	N
LF08-MW05B	11/2/00	20.67	14.8	7.67	1.000	0	52.7	6.79	N
	4/23/01	19.68	16.3	7.13	0.845	0	-142.4	1.12	N
LF08-MW08B	10/24/00	5.00	14.9	7.43	0.721	0	-95.0	0.79	N
	4/24/01	2.38	12.5	6.98	0.615	5	-207.2	0.39	N
LF08-MW09A	10/12/99	17.32	15.0	7.41	0.813	7	157.2	4.67	N
	10/23/00	15.36	14.3	7.15	0.425	0	141.8	7.46	N
	4/24/01	15.48	11.3	7.17	0.677	0	-125.0	5.36	N
LF08-MW10B	10/18/99	24.11	14.0	6.72	1.810	0	-29.1	1.18	N
	10/25/00	25.20	14.0	6.26	1.600	24	-22.4	0.99	N
	4/24/01	20.60	14.2	6.51	1.580	0	-160.0	0.86	N
LF08-MW11B	4/24/01	9.92	11.8	8.48	0.681	0	-152.7	7.07	N
LF08-MW101	10/20/99*	33.46	13.2	7.41	0.484	off scale	NR	ERR	Y
	10/24/00	34.60	14.0	6.99	0.219	14	-166.1	0.23	N
	4/24/01	30.58	11.0	7.58	0.546	0	-145.6	1.06	N
LF08-MW102	10/19/99	39.50	13.5	6.88	0.404	21	-122.5	ERR	N
	10/18/00	37.94	11.0	7.44	0.726	1	-77.2	6.29	N
	4/24/01	35.86	12.0	7.45	0.498	0	-23.3	3.20	N
LF08-MW103	10/19/99	35.93	13.8	7.05	0.505	4	-154.4	ERR	N
	10/24/00	37.35	14.7	6.98	0.274	4	-123.3	1.87	N
	4/24/01	35.00	19.4	7.61	0.365	0	-95.7	1.79	N
02-DM-81D-M	10/30/00	30.29	15.2	7.32	0.845	48	-91.9	1.80	N
	4/23/01	27.63	15.6	6.91	0.941	0	-134.9	1.59	N
02-DM-82-M	10/30/00	12.58	11.7	7.30	0.800	5	-101.6	1.57	N
	4/23/01	10.22	15.0	7.45	0.622	0	1.0	2.03	N
02-DM-83S-M	10/31/00	20.40	15.2	6.34	1.550	495	32.8	3.15	N
	4/25/01	16.75	10.8	6.86	1.360	off scale	193.6	4.60	Y

**Table 2-2**  
**OU1 Monitoring Well Sampling**  
**Field Parameters: April 2001**  
**Wright-Patterson AFB, Ohio**  
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Well Number	Date Sampled	Static Water Level (ft, TOC)	Temp. (C°)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mv)	DO (mg/L)	Well Went Dry (Y/N)
<b>Landfill 10</b>									
LF10-MW03A	10/26/00	92.30	16.2	7.53	0.949	78	25.5	12.63	Y
	4/26/01	89.88	13.0	7.40	0.780	440	120.3	2.50	Y
LF10-MW05B	10/12/99	20.41	11.7	7.05	0.553	0	15.0	ERR	N
	10/25/00	20.51	13.0	7.03	0.792	0	-84.0	0.47	N
	4/23/01	20.83	13.2	6.85	0.708	0	-83.8	0.45	N
LF10-MW06A	10/12/99	72.10	15.1	7.26	0.478	0	37.7	7.76	N
	10/25/00	72.10	13.9	7.20	0.691	0	-50.1	6.71	N
	4/25/01	72.54	13.4	7.27	0.592	0	52.5	6.38	N
LF10-MW07A	10/26/00	53.30	13.1	7.27	0.885	0	-198.2	0.21	N
	4/23/01	53.24	14.4	7.07	0.823	0	-158.7	0.53	N
LF10-MW08A-2	10/13/99	68.13	16.4	7.12	0.636	15	-72.3	ERR	N
	10/18/00	67.16	12.6	6.75	0.553	22	-84.2	0.60	N
	4/25/01	65.52	16.1	7.10	0.799	6	-90.7	1.40	N
LF10-MW09C	10/18/99	36.65	12.6	7.18	1.140	6	-89.1	2.29	N
	10/30/00	36.68	12.0	7.10	1.150	1	-165.1	1.53	N
	4/25/01	32.51	12.2	7.12	0.716	21	-23.9	8.43	N
LF10-MW10C	10/30/00	50.29	14.1	6.66	0.529	22	-31.1	0.81	N
	4/26/01	46.71	12.4	7.06	0.802	0	155.6	0.56	N
LF10-MW102	10/18/99	62.34	Went dry - but some samples collected						Y
	10/25/00	64.78	No samples collected						Y
	4/25/01	DRY	No samples collected						Y
LF10-MW103	10/19/99*	32.81	13.9	6.40	1.360	455	-49.6	ERR	Y
	10/26/00	36.60	16.7	6.27	1.700	6	-89.7	0.64	Y
	4/25/01	32.70	12.5	6.58	1.380	361	-52.2	2.47	N
LF10-MW104	10/18/99	DRY	No samples collected						Y
	10/25/00	DRY	No samples collected						Y
	4/25/01	DRY	No samples collected						Y
LF10-MW105	10/14/99	46.58	13.2	7.62	0.413	19	197.3	1.22	Y
	10/26/00	48.36	12.4	7.10	0.368	2	164.5	1.30	Y
	4/25/01	46.14	12.2	7.25	0.513	1	-116.8	2.86	Y
01-DM-102D-M	10/31/00	48.27	13.5	7.97	0.931	42	89.1	2.35	N
	4/25/01	46.51	13.0	8.62	0.440	14	-173.3	1.33	N
01-004-M	10/27/00	46.82	16.4	7.24	0.884	643	31.5	6.24	N
	4/23/01	48.33	17.1	7.05	0.830	0	104.1	4.78	N

BTP - Below top of pump  
DO - Dissolved Oxygen  
NA - Not applicable  
NR - No reading

ORP - Oxygen Reduction Potential  
ERR - equipment error  
mg/L - milligrams per liter  
mV - millivolts

\* - Parameters taken one day earlier  
C° - Degrees Celsius  
SU - Standard Units  
ft, TOC - feet below top of casing  
ft, MSL - feet, ref. Mean sea level

**Table 2-3**  
**OU1 Quarterly Leachate Discharge**  
**Line Sampling Program**  
**Wright-Patterson AFB, Ohio**

<b>Parameter</b>	<b>Analytical Method</b>	<b>Container</b>	<b>Preservative</b>	<b>Holding Time</b>
Volatile Organics 1,2-Dichloroethene Benzene Methylene Chloride Toluene	EPA 8260B <sup>(a)</sup>	Three 40-ml glass vials; Teflon-lined septum cap	HCl to pH # 2; Store @ 4EC.	Within 14 days
Metals (total) Arsenic Cadmium Chromium Copper Lead Mercury Molybdenum Nickel Selenium Zinc	EPA 200.7 <sup>(b)</sup>	One 1 liter polyethylene bottle	HNO <sub>3</sub> to pH # 2, store @ 4EC.	6 months
Oil and Grease	EPA 413.1 <sup>(b)</sup>	One 1 liter amber glass	H <sub>2</sub> SO <sub>4</sub> to pH # 2, store @ 4EC.	28 days
Total Suspended Solids	EPA 160.2 <sup>(b)</sup>	One 250-ml polyethylene	Store @ 4EC.	7 days
Chemical oxygen Demand	EPA 410.1 <sup>(b)</sup>	One 250-ml poly or polyethylene	H <sub>2</sub> SO <sub>4</sub> to pH # 2, store @ 4EC.	28 days
pH	EPA 150.1 <sup>(b)</sup>	One 25-ml glass or polyethylene	None Required	Analyze immediately
Total Flow and Daily Flow	N/A	Field reading from totalizing flow meter and strip chart recorded	N/A	N/A

(a) "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater," 40CFR, Part 136, Appendix A, October 26, 1984 and subsequent revisions

(b) "Methods for Chemical Analysis of Water and Wastes," EPA-600/4-79-020, March 1983 and subsequent revisions.

**Table 2-4**  
**OU1 Regulatory Detection Limits for Chemicals of Concern: April 2001**  
**Wright-Patterson AFB, OH**  
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	REGULATORY LIMITS		DETECTION LIMITS							
	ROD Compliance Level (µg/L)	MCL (µg/L)	LF08-MW02C (µg/L)	LF08-MW05B (µg/L)	LF08-MW05B-DUP (µg/L)	LF08-MW08B (µg/L)	LF08-MW09A (µg/L)	LF08-MW10B (µg/L)	LF08-MW11B (µg/L)	LF08-MW101 (µg/L)
<b>Chemicals of Concern</b>										
<b><u>VOCs</u></b>										
Benzene	0.62	5.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Chloroform	0.28	100	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
trans-1,2-Dichloroethene	100	100	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Ethylbenzene	NRL	700	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Methylene Chloride	6.22	5.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Toluene	NRL	1000	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Trichloroethene	3.03	5.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Vinyl Chloride	0.0283	2.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
<b><u>Inorganic Metals</u></b>										
Arsenic	11	50	10	10	10	10	10	10	10	10
Beryllium	0.02	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Cadmium	NRL	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Copper	NRL	1300	25	25	25	25	25	25	25	25
Iron	NRL	NRL	100	100	100	100	100	100	100	100
Lead	NRL	15	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Zinc	NRL	NRL	50	50	50	50	50	50	50	50

**Table 2-4**  
**OU1 Regulatory Detection Limits for Chemicals of Concern: April 2001**  
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Chemicals of Concern	REGULATORY LIMITS		DETECTION LIMITS								
	ROD Compliance Level (µg/L)	MCL (µg/L)	LF08-MW102 (µg/L)	LF08-MW103 (µg/L)	02-DM-81D-M (µg/L)	02-DM-82-M (µg/L)	02-DM-83S-M (µg/L)	LF10-MW03A (µg/L)	LF10-MW05B (µg/L)	LF10-MW06A (µg/L)	LF10-MW07A (µg/L)
<b><u>VOCs</u></b>											
Benzene	0.62	5.0	1.0	1.0	1.0	1.0	2.5	1.0	1.0	1.0	1.0
Chloroform	0.28	100	1.0	1.0	1.0	1.0	2.5	1.0	1.0	1.0	1.0
trans-1,2-Dichloroethene	100	100	0.5	0.5	0.5	0.5	1.2	0.5	0.5	0.5	0.5
Ethylbenzene	NRL	700	1.0	1.0	1.0	1.0	2.5	1.0	1.0	1.0	1.0
Methylene Chloride	6.22	5.0	1.0	1.0	1.0	1.0	2.5	1.0	1.0	1.0	1.0
Toluene	NRL	1000	1.0	1.0	1.0	1.0	2.5	1.0	1.0	1.0	1.0
Trichloroethene	3.03	5.0	2.0	2.0	2.0	2.0	5.0	2.0	2.0	2.0	2.0
Vinyl Chloride	0.0283	2.0	1.0	1.0	1.0	1.0	2.5	1.0	1.0	1.0	1.0
<b><u>Inorganic Metals</u></b>											
Arsenic	11	50	10	10	10	10	10	10	10	10	10
Beryllium	0.02	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Cadmium	NRL	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Copper	NRL	1300	25	25	25	25	25	25	25	25	25
Iron	NRL	NRL	100	100	100	100	100	100	100	100	100
Lead	NRL	15	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Zinc	NRL	NRL	50	50	50	50	50	50	50	50	50

**Table 2-4**  
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Chemicals of Concern	REGULATORY LIMITS		DETECTION LIMITS						
	ROD Compliance Level (µg/L)	MCL (µg/L)	LF10-MW07A-DUP (µg/l)	LF10-MW08A-2 (µg/L)	LF10-MW08A-2-DUP (µg/L)	LF10-MW09C (µg/L)	LF10-MW10C (µg/L)	LF10-MW10C-AMB (µg/L)	LF10-MW102 (µg/L)
<b><u>VOCs</u></b>									
Benzene	0.62	5.0	1.0	1.0	1.0	1.0	1.0	1.0	NO  SAMPLE  COLLECTED
Chloroform	0.28	100	1.0	1.0	1.0	1.0	1.0	1.0	
trans-1,2-Dichloroethene	100	100	0.5	0.5	0.5	0.5	0.5	0.5	
Ethylbenzene	NRL	700	1.0	1.0	1.0	1.0	1.0	1.0	
Methylene Chloride	6.22	5.0	1.0	1.0	1.0	1.0	1.0	1.0	
Toluene	NRL	1000	1.0	1.0	1.0	1.0	1.0	1.0	
Trichloroethene	3.03	5.0	2.0	2.0	2.0	2.0	2.0	2.0	
Vinyl Chloride	0.0283	2.0	1.0	1.0	1.0	1.0	1.0	1.0	
<b><u>Inorganic Metals</u></b>									
Arsenic	11	50	10	10	10	10	10	10	WELL
Beryllium	0.02	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Cadmium	NRL	5.0	5.0	5.0	5.0	5.0	5.0	5.0	WAS
Copper	NRL	1300	25	25	25	25	25	25	
Iron	NRL	NRL	100	100	100	100	100	100	DRY
Lead	NRL	15	3.0	3.0	3.0	3.0	3.0	3.0	
Zinc	NRL	NRL	50	50	50	50	50	50	

**Table 2-4**  
**OU1 Regulatory Detection Limits for Chemicals of Concern: April 2001**  
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Chemicals of Concern	REGULATORY LIMITS		DETECTION LIMITS				
	ROD Compliance Level (µg/L)	MCL (µg/L)	LF10-MW103 (µg/L)	LF10-MW104 (µg/L)	LF10-MW105 (µg/L)	01-DM-102D-M (µg/L)	01-004-M (µg/L)
<b><u>VOCs</u></b>							
Benzene	0.62	5.0	1.0	NO	1.0	1.0	1.0
Chloroform	0.28	100	1.0		1.0	1.0	1.0
trans-1,2-Dichloroethene	100	100	0.5	SAMPLE	0.5	0.5	0.5
Ethylbenzene	NRL	700	1.0		1.0	1.0	1.0
Methylene Chloride	6.22	5.0	1.0	COLLECTED	1.0	1.0	1.0
Toluene	NRL	1000	1.0		1.0	1.0	1.0
Trichloroethene	3.03	5.0	2.0		2.0	2.0	2.0
Vinyl Chloride	0.0283	2.0	1.0		1.0	1.0	1.0
<b><u>Inorganic Metals</u></b>							
Arsenic	11	50	10	WELL	10	10	10
Beryllium	0.02	4.0	4.0		4.0	4.0	4.0
Cadmium	NRL	5.0	5.0	WAS	5.0	5.0	5.0
Copper	NRL	1300	25		25	25	25
Iron	NRL	NRL	100	DRY	100	100	100
Lead	NRL	15	3.0		3.0	3.0	3.0
Zinc	NRL	NRL	50		50	50	50

µg/l - micrograms/liter  
MCL - Maximum Contaminant Level  
VOCs - Volatile Organic Compounds  
NRL - No Regulatory Limit set for these chemicals.

**Table 2-5**  
**Groundwater Analytical Results Summary - VOCs**  
**Monitoring Wells - Landfill 8**  
**Wright-Patterson AFB, Ohio**  
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LOCATION	SAMPLE DATE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	CHLOROFORM	TRANS-1,2-DCE	METHYLENE CHLORIDE	MTBE	TCE	VINYL CHLORIDE
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Compliance Level - ROD		0.62	NCL	NCL	NCL	0.28	100	6.22	NCL	3.03	0.0283
Compliance Level -MCL		5	1000	700	10000	NCL	100	NCL	NCL	5	2
WP-LF08-MW02C	10/1/96	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	11/1/97	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/26/98	ND	ND	ND	ND	ND	ND	1.2	NS	ND	ND
	10/12/99	0.37 J	0.34 J	ND	ND	ND	ND	ND	NS	ND	ND
	10/12/99	0.35 J	0.32 J	ND	ND	ND	ND	ND	NS	ND	ND
	10/23/00	ND	ND	ND	ND	ND	ND	0.46 J	ND	ND	ND
	4/23/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-LF08-MW05B	5/31/91	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	9/9/91	(1 J)	0.5 J	ND	ND	ND	ND	ND	NS	ND	ND
	1/27/92	(0.8 J)	ND	ND	ND	ND	ND	ND	NS	ND	ND
	11/2/00	0.17 J	0.19 J	ND	ND	ND	ND	0.20 J	ND	0.40 J	(0.38 J)
	4/23/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/23/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/23/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-LF08-MW08B	5/15/91	(<1 J)	ND	ND	ND	ND	ND	<2 J	NS	ND	(<2 J)
	10/24/00	ND	ND	ND	ND	ND	ND	0.39 J,B	ND	ND	ND
	10/24/00	ND	ND	ND	ND	ND	ND	0.40 J,B	ND	ND	ND
	4/24/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-LF08-MW09A	10/1/96	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	11/1/97	ND	ND	ND	ND	ND	ND	(29)	NS	ND	ND
	10/22/98	(1.1)	1.3	0.33 J	1.87	ND	ND	3.1	NS	ND	ND
	10/12/99	0.43 J	0.67	ND	ND	ND	ND	ND	NS	ND	ND
	10/23/00	(1.8)	6.4	0.82 J	4.9	ND	ND	0.37 J	ND	ND	ND
	4/24/01	ND	ND	ND	ND	ND	ND	0.35 J,B	ND	ND	ND
	4/24/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-LF08-MW10B	10/1/96	ND	ND	ND	ND	ND	ND	ND	NS	ND	(9.0)
	11/1/97	ND	ND	ND	ND	ND	ND	ND	NS	ND	(6.4)
	10/19/98	ND	ND	ND	ND	ND	ND	0.45 J	NS	ND	(10)
	10/18/99	ND	ND	ND	ND	ND	ND	ND	NS	ND	(8.2)
	10/25/00	ND	0.24 J	ND	ND	ND	0.11 J	0.38 J	ND	ND	(8.2)
	4/24/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	(7.4)
	4/24/01	ND	ND	ND	ND	ND	ND	0.34 J,B	ND	ND	ND
WP-LF08-MW11B	4/24/01	ND	ND	ND	ND	ND	ND	0.34 J,B	ND	ND	ND
WP-LF08-MW101	10/1/96	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	11/1/97	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NS	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NS	DRY	DRY
	10/22/98	ND	0.84	ND	ND	ND	ND	2.3	NS	ND	ND
	10/20/99	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/24/00	ND	0.15 J	ND	ND	ND	ND	0.33 J,B	ND	ND	ND
	4/24/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/24/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-LF08-MW102	10/1/96	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	11/1/97	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NS	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NS	DRY	DRY
	10/22/98	ND	ND	ND	ND	ND	ND	1.1	NS	ND	ND
	10/19/99	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/18/00	ND	0.29 J	ND	ND	ND	ND	ND	ND	ND	ND
	4/24/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/24/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

**Table 2-5**  
**Groundwater Analytical Results Summary - VOCs**  
**Monitoring Wells - Landfill 8**  
**Wright-Patterson AFB, Ohio**  
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LOCATION	SAMPLE DATE	BENZENE	TOLUENE	ETHYLBENZENE	TOTAL XYLENES	CHLOROFORM	TRANS-1,2-DCE	METHYLENE CHLORIDE	MTBE	TCE	VINYL CHLORIDE
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Compliance Level - ROD		0.62	NCL	NCL	NCL	0.28	100	6.22	NCL	3.03	0.0283
Compliance Level -MCL		5	1000	700	10000	NCL	100	NCL	NCL	5	2
WP-LF08-MW103	10/1/96	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	11/1/97	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NS	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	NS	DRY	DRY
	10/26/98	ND	ND	ND	ND	ND	ND	0.91	NS	ND	ND
	10/19/99	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/24/00	ND	0.19 J	ND	ND	ND	ND	0.33 J,B	ND	ND	ND
	4/24/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-02-DM-81D-M	6/1/86	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	5/15/91	ND	<1 J	ND	ND	ND	ND	<2 J	NS	ND	(<2 J)
	9/16/91	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	1/28/92	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	9/1/98	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/30/00	ND	0.16 J	ND	ND	ND	ND	ND	ND	ND	ND
	4/23/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-02-DM-82-M	6/1/86	ND	ND	ND	ND	(<5)	ND	ND	NS	ND	ND
	5/13/91	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	9/17/91	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	2/1/92	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	9/1/98	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/30/00	ND	ND	ND	ND	ND	ND	0.23 J,B	ND	ND	ND
	4/23/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-02-DM-83S-M	6/1/86	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	5/13/91	(1 J)	ND	ND	ND	ND	1	<2 J	NS	ND	(<2 J)
	9/11/91	(1 J)	ND	ND	ND	ND	1	ND	NS	ND	(4)
	1/17/92	(1 J)	ND	ND	ND	ND	2	ND	NS	ND	(8)
	1/17/92	(0.9 J)	ND	ND	ND	ND	ND	ND	NS	ND	ND
	9/1/98	(2)	ND	ND	ND	(6)	3	ND	NS	ND	(3)
	10/31/00	0.56 J	ND	ND	ND	ND	0.34 J	0.82 J	ND	ND	(6.6)
	4/25/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	(6.1)
LF8/10-LW01-2001	1/29/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LF8/10-LW02-2001	4/26/01	0.59 J	ND	ND	ND	ND	0.19 J	ND	ND	ND	(1.1)

( ) - Concentration exceeds a compliance level.

ND - Not Detected

NS - Not Sampled

NCL - No Compliance Level set for these chemicals.

µg/L - micrograms per liter

DCE - Dichloroethene

TCE - Trichloroethene

MTBE - Methyl tert-butyl ether

J - Estimated result, result less than reporting limit

B - Method blank contamination.

VOC - Volatile Organic Compound

ROD - Record of Decision

MCL - Maximum Contaminant Level

See Appendix C-3 to find any other detections of VOCs not listed here for the April 2001 sampling round.

**Table 2-6**  
**Groundwater Analytical Results Summary - Inorganic Compounds**  
**Monitoring Wells - Landfill 8**  
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LOCATION	DATE	ARSENIC	BERYLLIUM	CADMIUM	COPPER	IRON	LEAD	ZINC
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Compliance Level - ROD		11	0.02	NCL	NCL	NCL	NCL	NCL
Compliance Level - MCL		50	4	5	1,300	NCL	15	NCL
WP-LF08-MW02C    Duplicate	10/1/96	ND	ND	ND	ND	10,700	6.0	ND
	11/1/97	(50)	ND	ND	50	44,000	(21)	120
	10/26/98	(14)	ND	ND	ND	4,000	ND	ND
	10/12/99	(19)	ND	ND	ND	3,800	ND	ND
	10/12/99	(23)	ND	ND	ND	4,600	ND	ND
	10/23/00	(19)	ND	ND	ND	5,400	ND	ND
	4/23/01	(33)	ND	ND	ND	6,300	ND	ND
WP-LF08-MW05B    Duplicate	5/31/91	4 J	ND	ND	21 J	ND	2 J	ND
	9/9/91	4 J	ND	3 J	2 J	3,690	1 J	ND
	1/27/92	3 J	(1 J)	ND	8 J	ND	ND	ND
	11/2/00	ND	ND	ND	ND	1,700	ND	ND
	4/23/01	ND	ND	ND	ND	1,500	ND	ND
	4/23/01	ND	ND	ND	ND	1,700	ND	ND
	4/23/01	ND	ND	ND	ND	1,700	ND	ND
WP-LF08-MW08B  Duplicate	5/15/91	5.2 J	ND	ND	ND	391	ND	13.4 J
	10/24/00	(14)	ND	ND	ND	1,600	ND	ND
	10/24/00	(17)	ND	ND	ND	1,800	ND	ND
	4/24/01	(33)	ND	ND	ND	4,100	ND	ND
WP-LF08-MW09A	10/1/96	ND	ND	ND	ND	418	ND	ND
	11/1/97	ND	ND	ND	20	18,000	6.0	30
	10/22/98	ND	ND	ND	ND	ND	ND	ND
	10/12/99	ND	ND	ND	ND	ND	ND	ND
	10/23/00	ND	ND	ND	ND	170	ND	ND
	4/24/01	ND	ND	ND	ND	ND	ND	ND
WP-LF08-MW10B	10/1/96	ND	ND	ND	ND	1,670	ND	ND
	11/1/97	ND	ND	ND	ND	1,400	ND	ND
	10/19/98	ND	ND	ND	ND	1,600	ND	ND
	10/18/99	ND	ND	ND	ND	1,400	ND	ND
	10/25/00	ND	ND	ND	ND	1,500	ND	ND
	4/24/01	ND	ND	ND	ND	1,400	ND	ND
	4/24/01	ND	ND	ND	ND	1,300	ND	ND
WP-LF08-MW11B	4/24/01	ND	ND	ND	ND	1,300	ND	ND
WP-LF08-MW101	10/1/96	ND	ND	0.4	ND	6,210	(17)	62
	11/1/97	ND	(7)	ND	ND	54,000	ND	180
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/22/98	10	ND	ND	26	15,200	(26)	100
	10/20/99	(15)	ND	ND	ND	24,200	(26)	84
	10/24/00	ND	ND	ND	ND	6,800	8.3	450
	4/24/01	ND	ND	ND	ND	3,400	ND	ND
	4/24/01	ND	ND	ND	ND	3,400	ND	ND

**Table 2-6**  
**Groundwater Analytical Results Summary - Inorganic Compounds**  
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LOCATION	DATE	ARSENIC	BERYLLIUM	CADMIUM	COPPER	IRON	LEAD	ZINC
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Compliance Level - ROD		11	0.02	NCL	NCL	NCL	NCL	NCL
Compliance Level - MCL		50	4	5	1,300	NCL	15	NCL
WP-LF08-MW102	10/1/96	(61)	(3.0)	2	164	115,000	(86)	396
	11/1/97	(40)	ND	ND	30	30,000	(17)	90
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/22/98	(11)	ND	ND	ND	6,200	ND	ND
	10/19/99	10	ND	ND	ND	2,100	ND	69
	10/18/00	(11)	ND	ND	ND	2,400	ND	110
	4/24/01	ND	ND	ND	ND	200	ND	61
WP-LF08-MW103	10/1/96	ND	(1.0)	3	106	56,200	(49)	258
	11/1/97	(50)	ND	ND	50	44,000	(21)	120
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/26/98	(13)	ND	ND	ND	9,000	5.1	70
	10/19/99	ND	ND	ND	ND	2,100	ND	ND
	10/24/00	ND	ND	ND	ND	1,100	ND	190
	4/24/01	ND	ND	ND	ND	730	ND	88
WP-02-DM-81D-M	5/15/91	5 J	ND	2 J	ND	2150	2 J	19 J
	9/16/91	(22)	ND	ND	ND	5,330	5 J	ND
	1/28/92	(18)	ND	ND	5 J	3670 J	2 J	ND
	10/30/00	(24)	ND	ND	ND	4,700	ND	ND
	4/23/01	(16)	ND	ND	ND	3,500	ND	ND
WP-02-DM-82-M	5/13/91	(12 J)	(0.8 J)	ND	8 J	2,590	2 J	ND
	9/17/91	(13)	ND	ND	95	7,690	1 J	ND
	2/1/92	(18)	ND	ND	ND	783	2 J	ND
	10/30/00	ND	ND	ND	ND	190	ND	ND
	4/23/01	ND	ND	ND	ND	ND	ND	ND
WP-02-DM-83S-M	5/13/91	8 J	ND	2 J	26 J	4,180	1 J	19 J
	9/11/91	(34)	(2 J)	3 J	147	79,900	(44 J)	314
	1/17/92	(18 J)	ND	ND	47	2,640	6 J	20 J
	10/31/00	ND	ND	ND	ND	8,100	9	58
	4/25/01	ND	ND	ND	ND	1,900	ND	ND
LF8/10-LW01-2001	1/29/01	(120)	ND	ND	51	176,000 B	5.6	230
LF8/10-LW02-2001	4/26/01	ND	ND	ND	25	1,900	ND	ND

ROD - Record of Decision

MCL - Maximum Contaminant Level

NCL - No Compliance Level set for these chemicals.

B - Method blank contamination.

J - Estimated result, result less than reporting limit

( ) - Concentration exceeds a compliance level.

µg/L - micrograms per liter

NS - Not Sampled

ND - Not Detected

**Table 2-7**  
**Groundwater Analytical Results Summary - VOCs**  
**Monitoring Wells - Landfill 10**  
**Wright-Patterson AFB, Ohio**  
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LOCATION Units	SAMPLE DATE	BENZENE μg/L	ETHYLBENZENE μg/L	TOLUENE μg/L	TOTAL XYLENES μg/L	CHLOROFORM μg/L	TRANS-1,2-DCE μg/L	METHYLENE CHLORIDE μg/L	MTBE μg/L	TCE μg/L	VINYL CHLORIDE μg/L
Compliance Level - ROD		0.62	NCL	NCL	NCL	0.28	100	6.22	NCL	3.03	0.0283
Compliance Level - MCL		5	700	1,000	10,000	NCL	100	NCL	NCL	5	2
WP-LF10-MW03A	5/23/91	ND	ND	ND	ND	(13 J)	ND	ND	NS	ND	ND
	1/19/92	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/26/00	0.36 J,B	ND	0.14 J	ND	ND	ND	0.30 J,B	ND	ND	ND
	4/26/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-LF10-MW05B  Duplicate	10/1/96	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	11/1/97	ND	ND	ND	ND	ND	ND	(25)	NS	ND	ND
	10/23/98	ND	ND	ND	0.64 J	ND	ND	1.2	NS	0.29 J	ND
	10/23/98	ND	ND	ND	ND	ND	ND	1.8	NS	ND	ND
	10/12/99	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/25/00	ND	ND	ND	ND	ND	ND	0.26 J	ND	ND	ND
	4/23/01	ND	ND	ND	ND	ND	ND	0.36 J,B	ND	ND	ND
WP-LF10-MW06A	5/19/91	ND	ND	ND	ND	ND	ND	<2 J	NS	ND	ND
	8/28/91	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	1/30/92	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/1/96	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	11/1/97	(2.0)	ND	3.2	ND	ND	ND	(11)	NS	ND	ND
	10/27/98	0.55	ND	0.74	ND	ND	ND	ND	NS	ND	ND
	10/12/99	0.42 J	ND	0.32 J	ND	ND	ND	ND	NS	ND	ND
	10/25/00	ND	ND	0.21 J	ND	ND	ND	0.24 J	ND	ND	ND
	4/25/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-LF10-MW07A  Duplicate  Duplicate	5/21/91	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	8/26/91	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	1/28/92	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/26/00	0.23 J,B	ND	ND	ND	ND	ND	ND	ND	ND	ND
	10/26/00	0.21 J,B	ND	ND	ND	ND	ND	0.25 J,B	ND	ND	ND
	4/23/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	4/23/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-LF10-MW08A-2  Duplicate  Duplicate	10/1/96	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	11/1/97	ND	ND	ND	ND	ND	ND	3.8	NS	ND	ND
	10/20/98	ND	ND	ND	ND	ND	ND	0.47 J	NS	ND	ND
	10/13/99	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/13/99	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/18/00	0.12 J	ND	0.24 J	ND	ND	ND	ND	ND	ND	ND
	4/25/01	ND	ND	0.33 J	0.56 J	ND	ND	ND	ND	ND	ND
	4/25/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-LF10-MW09C	10/1/96	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	11/1/97	(2.9)	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/29/98	(3.2)	ND	ND	ND	ND	ND	0.28 J	NS	ND	ND
	10/18/99	(3.0)	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/30/00	(3.8)	ND	0.47 J	ND	ND	ND	0.34 J,B	ND	ND	ND
	4/25/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-LF10-MW10C	5/16/91	ND	<1 J	<2 J	2	ND	ND	<2 J	NS	1	ND
	8/23/91	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	1/30/92	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/30/00	ND	ND	0.13 J	ND	ND	ND	0.23 J,B	ND	ND	ND
	4/26/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

**Table 2-7**  
**Groundwater Analytical Results Summary - VOCs**  
**Monitoring Wells - Landfill 10**  
**Wright-Patterson AFB, Ohio**  
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LOCATION Units	SAMPLE DATE	BENZENE μg/L	ETHYLBENZENE μg/L	TOLUENE μg/L	TOTAL XYLENES μg/L	CHLOROFORM μg/L	TRANS-1,2-DCE μg/L	METHYLENE CHLORIDE μg/L	MTBE μg/L	TCE μg/L	VINYL CHLORIDE μg/L
Compliance Level - ROD		0.62	NCL	NCL	NCL	0.28	100	6.22	NCL	3.03	0.0283
Compliance Level - MCL		5	700	1,000	10,000	NCL	100	NCL	NCL	5	2
WP-LF10-MW102	11/1/97	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/29/98	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/18/99	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/25/00	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	4/25/01	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
WP-LF10-MW103	10/1/96	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	11/1/97	(2.7)	ND	ND	ND	ND	ND	2.5	NS	ND	ND
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/23/98	(1.5)	ND	ND	ND	ND	ND	1.5	NS	ND	ND
	10/19/99	(0.87)	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/26/00	(2.1)	ND	0.24 J	ND	ND	ND	0.32 J	0.12 J	ND	ND
	4/25/01	(1.2)	ND	ND	ND	ND	ND	0.48 J,B	ND	ND	ND
WP-LF10-MW104	11/1/97	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/18/99	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/25/00	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	4/25/01	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
WP-LF10-MW105	10/1/96	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	11/1/97	ND	ND	55	ND	ND	ND	3.8	NS	ND	ND
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/23/98	ND	ND	ND	ND	ND	ND	1.2	NS	ND	ND
	10/14/99	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/26/00	ND	ND	0.19 J	ND	ND	ND	0.22 J	ND	ND	ND
	4/25/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-01-DM-102D-M	6/1/86	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	9/1/88	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	5/16/91	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	9/4/91	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	1/20/92	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	10/31/00	ND	ND	0.14 J	ND	ND	ND	ND	ND	ND	ND
	4/25/01	ND	ND	ND	ND	ND	ND	0.34 J,B	ND	ND	ND
WP-01-004-M	6/1/86	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	9/1/88	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND
	5/21/91	(2 J)	1 J	1 J	1 J	(2 J)	1 J	2 J	NS	1 J	(2 J)
	9/5/91	(3)	0.6 J	4	4	ND	ND	ND	NS	ND	ND
	10/27/00	0.43 J	ND	1.8	0.93 J	ND	ND	0.60 J	ND	ND	ND
	4/23/01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LF10-MW10C-AMB01	4/26/01	ND	ND	ND	ND	(13)	ND	0.39 J,B	ND	ND	ND

NCL - No Compliance Level set for these chemicals.

( ) - Concentration exceeds a compliance level.

ROD - Record of Decision

MCL - Maximum Contaminant Level

See Appendix C-3 to find any detections of other VOCs not listed here for the April 2001 sampling round.

VOC - Volatile Organic Compound

AMB01 - Ambient Blank

μg/L - micrograms per liter

MTBE - Methyl tert-butyl ether

TCE - Trichloroethene

DCE - Dichloroethene

ND - Not Detected

J - Estimated Result

B - Method blank contamination.

**Table 2-8**  
**Groundwater Analytical Results Summary - Inorganic Compounds**  
**Monitoring Wells - Landfill 10**  
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LOCATION	DATE	ARSENIC	BERYLLIUM	CADMIUM	COPPER	IRON	LEAD	ZINC
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Compliance Level - ROD		11	0.02	NCL	NCL	NCL	NCL	NCL
Compliance Level - MCL		50	4	5	1,300	NCL	15	NCL
WP-LF10-MW03A	1/19/92	ND	ND	ND	6 J	ND	2 J	ND
	10/26/00	ND	ND	ND	34	7,500	9.9	ND
	4/26/01	ND	ND	ND	ND	7,000	3.0	72
WP-LF10-MW05B Duplicate	11/1/97	ND	ND	ND	ND	500	ND	ND
	10/23/98	ND	ND	ND	ND	390	ND	ND
	10/23/98	ND	ND	ND	ND	430	ND	ND
	10/12/99	ND	ND	ND	ND	290	ND	ND
	10/25/00	ND	ND	ND	ND	210	ND	ND
	4/23/01	ND	ND	ND	ND	240	ND	ND
WP-LF10-MW06A	5/19/91	ND	ND	ND	ND	136	ND	26.8
	8/28/91	2 J	ND	ND	ND	459 J	1 J	49 J
	1/30/92	ND	ND	ND	3 J	28 J	3 J	ND
	10/1/96	ND	ND	0.8	ND	7,060	(15)	ND
	11/1/97	ND	ND	ND	ND	1,700	ND	ND
	10/27/98	ND	ND	ND	ND	190	ND	ND
	10/12/99	ND	ND	ND	ND	130	ND	ND
	10/25/00	ND	ND	ND	ND	140	ND	ND
	4/25/01	ND	ND	ND	ND	ND	ND	ND
WP-LF10-MW07A  Duplicate  Duplicate	5/21/91	10 J	ND	ND	ND	3,540 J	2 J	ND
	8/26/91	(12 J)	(0.9 J)	ND	ND	39,600	(20 J)	166 J
	1/28/92	(12)	ND	ND	3 J	2,800	ND	ND
	10/26/00	(12)	ND	ND	ND	3,700	ND	ND
	10/26/00	(12)	ND	ND	ND	3,500	ND	ND
	4/23/01	ND	ND	ND	ND	3,500	ND	ND
	4/23/01	ND	ND	ND	ND	3,400	ND	ND
WP-LF10-MW08A-2  Duplicate  Duplicate	11/1/97	ND	ND	ND	ND	10,000	5.0	ND
	10/20/98	ND	ND	ND	ND	1,200	ND	ND
	10/13/99	ND	ND	ND	ND	1,400	ND	ND
	10/13/99	ND	ND	ND	ND	1,400	ND	ND
	10/18/00	ND	ND	ND	ND	1,500	ND	ND
	4/25/01	ND	ND	ND	ND	1,400	ND	ND
	4/25/01	ND	ND	ND	ND	1,500	ND	ND

**Table 2-8**  
**Groundwater Analytical Results Summary - Inorganic Compounds**  
**Monitoring Wells - Landfill 10**  
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LOCATION	DATE	ARSENIC	BERYLLIUM	CADMIUM	COPPER	IRON	LEAD	ZINC
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Compliance Level - ROD		11	0.02	NCL	NCL	NCL	NCL	NCL
Compliance Level - MCL		50	4	5	1,300	NCL	15	NCL
WP-LF10-MW09C	10/1/96	ND	(1.0)	0.9	68	67,300	(48)	263
	11/1/97	10	ND	ND	ND	30,000	ND	ND
	10/29/98	ND	ND	ND	ND	1,500	ND	ND
	10/18/99	(15)	ND	ND	ND	5,100	ND	ND
	10/30/00	(16)	ND	ND	ND	6,700	ND	ND
	4/25/01	ND	ND	ND	ND	960	ND	ND
WP-LF10-MW10C	5/16/91	4	ND	ND	ND	75 J	2 J	ND
	8/23/91	2 J	ND	ND	ND	5,210	2 J	ND
	1/30/92	ND	ND	ND	ND	2,720	ND	ND
	10/30/00	ND	ND	ND	ND	600	ND	ND
	4/26/01	ND	ND	ND	ND	370	ND	ND
WP-LF10-MW102	11/1/97	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/29/98	NS	NS	NS	NS	NS	NS	NS
	10/18/99	VOC, Dioxin and SVOCs only were collected, not enough water produced						
	10/25/00	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	4/25/01	DRY	DRY	DRY	DRY	DRY	DRY	DRY
WP-LF10-MW103	10/1/96	(273)	(10)	ND	631	407,000	(233)	1460
	11/1/97	(70)	ND	ND	20	27,000	ND	ND
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/23/98	NS	NS	NS	NS	NS	NS	NS
	10/19/99	(56)	ND	ND	ND	20,300	ND	95
	10/26/00	(47)	ND	ND	ND	13,400	ND	66
	4/25/01	(67)	ND	ND	36	22,100	3.4	300
WP-LF10-MW104	11/1/97	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/18/99	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/25/00	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	4/25/01	DRY	DRY	DRY	DRY	DRY	DRY	DRY

**Table 2-8**  
**Groundwater Analytical Results Summary - Inorganic Compounds**  
**Monitoring Wells - Landfill 10**  
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LOCATION	DATE	ARSENIC	BERYLLIUM	CADMIUM	COPPER	IRON	LEAD	ZINC
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Compliance Level - ROD		11	0.02	NCL	NCL	NCL	NCL	NCL
Compliance Level - MCL		50	4	5	1,300	NCL	15	NCL
WP-LF10-MW105	10/1/96	ND	ND	ND	ND	1,310	ND	ND
	11/1/97	ND	ND	ND	20	4,100	ND	ND
	6/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	9/1/98	DRY	DRY	DRY	DRY	DRY	DRY	DRY
	10/23/98	NS	NS	NS	NS	NS	NS	NS
	10/14/99	ND	ND	ND	ND	570	ND	ND
	10/26/00	VOCs, SVOCs and Dioxins only were collected, not enough water produced						
	4/25/01	ND	ND	ND	ND	150	ND	ND
WP-01-DM-102D-M	5/16/91	4 J	ND	ND	ND	ND	ND	ND
	9/4/91	(25)	(1 J)	ND	ND	21,700	(21 J)	ND
	1/20/92	6 J	ND	ND	9 J	61 J	2 J	5 J
	10/31/00	ND	ND	ND	ND	2,500	4	ND
	4/25/01	ND	ND	ND	ND	330	ND	ND
WP-01-004-M	5/21/91	4 J	ND	ND	ND	419 J	2 J	ND
	9/5/91	5 J	ND	ND	ND	1,800	2 J	ND
	10/27/00	(16,100)	ND G	ND G	ND G	6,910,000	ND G	ND G
	4/23/01	(46)	ND	ND	ND	18,700	ND	ND
LF10-MW10C-AMB01	4/26/01	ND	ND	ND	ND	ND	ND	220

NCL = No Compliance Level set for these chemicals.  
ND = Not Detected  
ND G = Not Detected, but the reporting limit was elevated due to matrix interference  
NS = Not Sampled  
NS\* = Well did not produce enough water to collect all samples.  
AMB01 - Ambient Blank  
µg/L = micrograms per liter  
( ) = Concentration exceeds a compliance level.  
ROD - Record of Decision  
MCL - Maximum Contaminant Level  
J - Estimated result, result less than reporting limit

**Table 2-9**  
**Landfill 8 Explosive Gas Monitoring**  
**Field Measurements: April 2000 through April 2001**  
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Location	Date Monitored	Probe Press. (2) (in. of Hg)	Probe Oxygen (%)	(% Methane / % LEL)		Methane TLV (%) (5)	Distance/Direction From Nearest Probe/Structure	Comments
				Initial (3)	Sustained (4)			
<b>Monitor Points</b>								
LF08-MP001	4/13/00	29.3	6.3	15.4/328	11.5/296	0.11	91 ft. West	
	7/24/00	29.1	18.0	0/0	--	0.11	91 ft. West	
	9/28/00	29.2	19.8	0/0	--	0.11	91 ft. West	
	1/30/01	28.5	1.5	14.9/318	3.4/76	0.11	91 ft. West	
	5/2/01	28.9	0.1	8.3/7.2	NT	0.11	91 ft. West	
LF08-MP002	4/13/00	29.3	14.6	0/0	--	0.19	150 ft. West	
	7/24/00	29.1	20.2	0/0	--	0.19	150 ft. West	
	9/28/00	29.2	16.8	0/0	--	0.19	150 ft. West	
	1/30/01	28.5	3.5	0/0	--	0.19	150 ft. West	
	5/2/01	29.9	14.2	0/0	--	0.19	150 ft. West	
LF08-MP003	4/13/00	29.3	20.5	0/0	--	0.25	200 ft. West	
	7/24/00	29.1	19.9	0/0	--	0.25	200 ft. West	
	9/28/00	29.3	18.5	0/0	--	0.25	200 ft. West	
	1/30/01	28.3	18.9	0/0	--	0.25	200 ft. West	
	5/2/01	28.9	20.3	0/0	--	0.25	200 ft. West	
LF08-MP004	4/13/00	29.3	20.5	0/0	--	0.23	160 ft. West	
	7/24/00	29.1	17.8	0/0	--	0.23	160 ft. West	
	9/28/00	29.3	18.7	0/0	--	0.23	160 ft. West	
	1/30/01	28.3	18.9	0/0	--	0.23	160 ft. West	
	5/2/01	28.9	19.2	0/0	--	0.23	160 ft. West	
LF08-MP006	4/13/00	29.3	20.5	0/0	--	0.05	39 ft. South	
	7/24/00	29.1	19.9	0/0	--	0.05	39 ft. South	
	9/28/00	29.2	14.3	0/0	--	0.05	39 ft. South	
	1/30/01	28.5	5.0	0/0	--	0.05	39 ft. South	
	5/2/01	28.9	20.2	0/0	--	0.05	39 ft. South	
LF08-MP007	5/7/00 (6)	29.3	20.6	0/0	--	0.06	50 ft. North	
	7/24/00	29.1	19.9	0/0	--	0.06	50 ft. North	
	9/28/00	29.2	19.1	0/0	--	0.06	50 ft. North	
	1/30/01	28.6	6.7	0/0	--	0.06	50 ft. North	
	5/2/01	28.9	20.1	0/0	--	0.06	50 ft. North	
LF08-MP008	5/7/00 (6)	29.3	1.0	1.2/24	NT	0.02	17 ft. North	
	7/24/00	28.7	5.0	0/0	--	0.02	17 ft. North	
	9/28/00	28.8	10.6	0/0	--	0.02	17 ft. North	
	1/30/01	28.6	7.8	0/0	--	0.02	17 ft. North	
	5/2/01	29	20.1	0/0	--	0.02	17 ft. North	
								Under Water

**Table 2-9**  
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Location	Date Monitored	Probe Press. (2) (in. of Hg)	Probe Oxygen (%)	(% Methane / % LEL)		Methane TLV (%) (5)	Distance/Direction From Nearest Probe/Structure	Comments
				Initial (3)	Sustained (4)			
LF08-MP009	4/13/00	28.1	18.9	0/0	--	0.03	20 ft. North	
	7/24/00	29.1	2.3	0/0	--	0.03	20 ft. North	
	9/28/00	29.2	6.0	0/0	--	0.03	20 ft. North	
	1/30/01	29.9	1.6	0/0	--	0.03	20 ft. North	
	5/2/01	29.0	20.5	0/0	--	0.03	20 ft. North	
LF08-MP010	4/13/00	29.3	1.9	21.1/434	13.8/402	0.03	22 ft. North	
	7/24/00	29.1	0.4	19.7/394	0/0	0.03	22 ft. North	
	9/28/00	29.3	15.6	0/0	--	0.03	22 ft. North	
	1/30/01	28.7	0.5	37.1/744	0/0	0.03	22 ft. North	
	5/2/01	29.0	19.6	0/0	--	0.03	22 ft. North	
LF08-MP011	4/13/00	29.3	15.3	0/0	--	0.02	17 ft. North	
	7/24/00	29.1	19.8	0/0	--	0.02	17 ft. North	
	9/28/00	29.3	9.4	0/0	--	0.02	17 ft. North	
	1/30/01	28.4	7.1	0/0	--	0.02	17 ft. North	
	5/2/01	No data collected	--	--	--	--	--	Bad valve
LF08-MP012	4/13/00	29.3	4.3	1.0/20	0/0	0.02	13 ft. North	
	7/24/00	29.1	0.6	0.1/2	0/0	0.02	13 ft. North	
	9/28/00	29.2	9.4	0/0	--	0.02	13 ft. North	
	1/30/01	28.6	0.5	0.7/14	0/0	0.02	13 ft. North	
	5/2/01	No data collected	--	--	--	--	--	Bad valve
LF08-MP013	4/13/00	--	--	--	--	0.03	20 ft. South	Pressure valve broken
	7/24/00	--	--	--	--	0.03	20 ft. South	Pressure valve broken
	9/28/00	29.2	10.7	0/0	--	0.03	20 ft. South	
	1/30/01	28.9	5.5	0/0	--	0.03	20 ft. South	
	5/2/01	29.0	5.9	0/0	--	0.03	20 ft. South	
<b>Punchbars</b>								
LF08-PT003	4/13/00	ATMP	20.8	0/0	--	0.02	12 ft. North	
	7/24/00	ATMP	19.4	0/0	--	0.02	12 ft. North	
	9/28/00	ATMP	19.4	0/0	--	0.02	12 ft. North	
	1/30/01	ATMP	17.1	0/0	--	0.02	12 ft. North	
	5/2/01	ATMP	19.8	0/0	--	0.02	15 ft. North (7)	
LF08-PT10A	4/13/00	ATMP	20.6	0/0	--	0.02	12 ft. North	
	7/24/00	ATMP	19.4	0/0	--	0.02	12 ft. North	
	9/28/00	ATMP	18.8	0/0	--	0.02	12 ft. North	
	1/30/01	ATMP	19.3	0/0	--	0.02	12 ft. North	
	5/2/01	ATMP	20.4	0/0	--	0.02	12 ft. North	

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Location	Date Monitored	Probe Press. (2) (in. of Hg)	Probe Oxygen (%)	(% Methane / % LEL)		Methane TLV (%) (5)	Distance/Direction From Nearest Probe/Structure	Comments
				Initial (3)	Sustained (4)			
LF08-PT10B	4/13/00	ATMP	20.8	0/0	--	0.01	5 ft East	
	7/24/00	ATMP	19.0	0/0	--	0.01	5 ft East	
	9/28/00	ATMP	19.1	0/0	--	0.01	5 ft East	
	1/30/01	ATMP	19.0	0/0	--	0.01	5 ft East	
	5/2/01	ATMP	20.3	0/0	--	0.01	5 ft East	
LF08-PT10C	4/13/00	ATMP	20.0	0/0	--	0.01	5 ft North	
	7/24/00	No data collected	--	--	--	--	--	Could not locate
	9/28/00	ATMP	19.1	0/0	--	0.01	5 ft North	
	1/30/01	No data collected	--	--	--	--	--	Could not locate
	5/2/01	ATMP	20.1	0/0	--	0.01	5 ft North	

**Notes:**

- Abbreviations: in. = inches; ft.bgs = feet below ground surface; Hg = Mercury; TLV = percent combustible gas by volume (see Note 5); NA = not applicable, atmospheric pressure;  
GBT = gas barrier trench, N = north, S = south.
  - Pressure readings taken via pressure valve in unvented cap at top of probe.
  - Initial gas concentrations reading taken after purging probe a minimum of 30 seconds.
  - Sustained combustible gas concentration reading taken approximately one half hour after removing unvented lid from monitoring probe. This reading is only taken if methane and LEL were detected in the initial reading.
  - Methane TLV was calculated using the formula  $T = (0.00125)(H)$ , where T = threshold limit value, H = horizontal distance in feet between probe and closest occupied structure.
  - Access to the yard was gained and readings were taken on May 7, 2000.
  - Monitoring point LF08-PT003 was permanently relocated 3 feet to the east because the original point location was paved over in the Spring of 2001.
- ATMP - Atmospheric Pressure (Open bore hole).  
NT - Not taken. Monitoring probe was not disassembled prior to sustained measurement.

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Location	Date Monitored	Probe Press. (2) (in. of Hg)	Probe Oxygen (%)	(% Methane / % LEL)		Methane TLV (%) (5)	Distance/Direction From Nearest Probe/Structure	Comments
				Initial (3)	Sustained (4)			
<b>Monitor Points</b>								
LF10-MP014	4/13/00	29.2	20.5	0/0	--	0.04	30 ft. Northwest	
	7/24/00	29.1	18.5	0/0	--	0.04	30 ft. Northwest	
	9/29/00	29.3	17.1	0/0	--	0.04	30 ft. Northwest	
	1/30/01	28.8	12.0	0/0	--	0.04	30 ft. Northwest	
	5/2/01	29.9	4.8	4.9/4.0	NT	0.04	30 ft. Northwest	
LF10-MP016	4/13/00	29.4	12.4	0/0	--	0.11	87 ft. Southeast	
	7/24/00	28.9	9.5	0/0	--	0.11	87 ft. Southeast	
	9/29/00	29.4	8.8	0/0	--	0.11	87 ft. Southeast	
	1/30/01	28.6	7.0	0/0	--	0.11	87 ft. Southeast	
	5/2/01	28.9	16.1	0.7/0.7	NT	0.11	87 ft. Southeast	
LF10-MP019	4/13/00	29.2	9.5	0/0	--	0.03	25 ft. West	
	7/24/00	29.1	9.4	0/0	--	0.03	25 ft. West	
	9/29/00	29.4	4.7	0/0	--	0.03	25 ft. West	
	1/30/01	28.4	19.1	0/0	--	0.03	25 ft. West	
	5/2/01	28.9	19.6	0/0	--	0.03	25 ft. West	
LF10-MP020	4/13/00	29.2	1.1	0/0	--	0.02	18 ft. East	
	7/24/00	28.5	1.8	0/0	--	0.02	18 ft. East	
	9/29/00	29.4	11.1	0/0	--	0.02	18 ft. East	
	1/30/01	28.4	19.1	0/0	--	0.02	18 ft. East	
	5/2/01	28.9	19.9	0.1/0.1	NT	0.02	18 ft. East	
LF10-MP021	4/13/00	29.3	19.6	0/0	--	0.02	17 ft. East	
	7/24/00	29.1	18.5	0/0	--	0.02	17 ft. East	
	9/29/00	29.4	17.3	0/0	--	0.02	17 ft. East	
	1/30/01	28.4	19.3	0/0	--	0.02	17 ft. East	
	5/2/01	28.9	20.0	0/0	--	0.02	17 ft. East	
LF10-MP023	4/13/00	29.2	19.1	0/0	--	0.02	15 ft. Southeast	
	7/24/00	29.1	18.2	0/0	--	0.02	15 ft. Southeast	
	9/29/00	29.4	17.3	0/0	--	0.02	15 ft. Southeast	
	1/30/01	28.4	19.3	0/0	--	0.02	15 ft. Southeast	
	5/2/01	28.9	19.9	0/0	--	0.02	15 ft. Southeast	
LF10-MP026	4/13/00	29.2	20.5	0/0	--	0.02	18 ft. East	
	7/24/00	29.1	19.8	0/0	--	0.02	18 ft. East	
	9/29/00	29.4	17.8	0/0	--	0.02	18 ft. East	
	1/30/01	28.4	19.2	0/0	--	0.02	18 ft. East	
	5/2/01	28.9	20.9	0/0	--	0.02	18 ft. East	

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Location	Date Monitored	Probe Press. (2) (in. of Hg)	Probe Oxygen (%)	(% Methane / % LEL)		Methane TLV (%) (5)	Distance/Direction From Nearest Probe/Structure	Comments
				Initial (3)	Sustained (4)			
<b>Punchbars</b>								
LF10-PT030	4/13/00	ATMP	20.7	0/0	--	0.09	70 ft. East	
	7/24/00	ATMP	19.5	0/0	--	0.09	70 ft. East	
	9/29/00	ATMP	18.8	0/0	--	0.09	70 ft. East	
	1/30/01	ATMP	19.2	0/0	--	0.09	70 ft. East	
	5/2/01	ATMP	19.4	0/0	--	0.09	70 ft. East	
LF10-PT031	4/13/00	ATMP	16.8	0/0	--	0.09	70 ft. East	
	7/24/00	ATMP	19.6	0/0	--	0.09	70 ft. East	
	9/29/00	ATMP	18.7	0/0	--	0.09	70 ft. East	
	1/30/01	ATMP	19.3	0/0	--	0.09	70 ft. East	
	5/2/01	ATMP	19.4	0/0	--	0.09	70 ft. East	
LF10-PT035	4/13/00	ATMP	20.5	0/0	--	0.08	66 ft. East	
	7/24/00	ATMP	19.4	0/0	--	0.08	66 ft. East	
	9/29/00	ATMP	18.7	0/0	--	0.08	66 ft. East	
	1/30/01	ATMP	19.3	0/0	--	0.08	66 ft. East	
	5/2/01	ATMP	19.6	0/0	--	0.08	66 ft. East	
LF10-PT036	4/13/00	ATMP	19.7	0/0	--	0.09	69 ft. East	
	7/24/00	ATMP	19.4	0/0	--	0.09	69 ft. East	
	9/29/00	ATMP	18.7	0/0	--	0.09	69 ft. East	
	1/30/01	ATMP	19.2	0/0	--	0.09	69 ft. East	
	5/2/01	ATMP	19.7	0/0	--	0.09	69 ft. East	
LF10-PT060	4/13/00	ATMP	20.6	0/0	--	0.08	65 ft. East	
	7/24/00	ATMP	19.8	0/0	--	0.08	65 ft. East	
	9/29/00	ATMP	16.5	0/0	--	0.08	65 ft. East	
	1/30/01	ATMP	19.3	0/0	--	0.08	65 ft. East	
	5/2/01	ATMP	19.8	0/0	--	0.08	65 ft. East	
LF10-PT065	4/13/00	ATMP	19.3	0/0	--	0.09	69 ft. East	
	7/24/00	ATMP	19.7	0/0	--	0.09	69 ft. East	
	9/29/00	ATMP	19.1	0/0	--	0.09	69 ft. East	
	1/30/01	ATMP	19.2	0/0	--	0.09	69 ft. East	
	5/2/01	ATMP	19.7	0/0	--	0.09	69 ft. East	
LF10-PT078	4/13/00	ATMP	20.6	0/0	--	0.05	39 ft. Northeast	
	7/24/00	ATMP	20.0	0/0	--	0.05	39 ft. Northeast	
	9/29/00	ATMP	18.9	0/0	--	0.05	39 ft. Northeast	
	1/30/01	ATMP	19.3	0/0	--	0.05	39 ft. Northeast	
	5/2/01	ATMP	19.9	0/0	--	0.05	39 ft. Northeast	

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Location	Date Monitored	Probe Press. (2) (in. of Hg)	Probe Oxygen (%)	(% Methane / % LEL)		Methane TLV (%) (5)	Distance/Direction From Nearest Probe/Structure	Comments
				Initial (3)	Sustained (4)			
LF10-PT085	4/13/00	ATMP	19.9	0/0	--	0.08	60 ft. Southwest	
	7/24/00	ATMP	19.6	0/0	--	0.08	60 ft. Southwest	
	9/29/00	ATMP	19.2	0/0	--	0.08	60 ft. Southwest	
	1/30/01	ATMP	19.2	0/0	--	0.08	60 ft. Southwest	
	5/2/01	ATMP	20.0	0/0	--	0.08	60 ft. Southwest	
LF10-PT088	4/13/00	ATMP	20.1	0/0	--	0.02	14 ft. Northeast	
	7/24/00	ATMP	19.9	0/0	--	0.02	14 ft. Northeast	
	9/29/00	ATMP	19.1	0/0	--	0.02	14 ft. Northeast	
	1/30/01	ATMP	19.3	0/0	--	0.02	14 ft. Northeast	
	5/2/01	ATMP	20.0	0/0	--	0.02	14 ft. Northeast	
LF10-PT090	4/13/00	ATMP	20.7	0/0	--	0.24	196 ft. Southeast	
	7/24/00	ATMP	19.9	0/0	--	0.24	196 ft. Southeast	
	9/29/00	ATMP	18.6	0/0	--	0.24	196 ft. Southeast	
	1/30/01	ATMP	19.1	0/0	--	0.24	196 ft. Southeast	
	5/2/01	ATMP	19.9	1.0/22	NT	0.24	196 ft. Southeast	
LF10-PT091	4/13/00	ATMP	20.6	0/0	--	0.28	225 ft. Southeast	
	7/24/00	ATMP	19.8	0/0	--	0.28	225 ft. Southeast	
	9/29/00	ATMP	18.6	0/0	--	0.28	225 ft. Southeast	
	1/30/01	ATMP	19.1	0/0	--	0.28	225 ft. Southeast	
	5/2/01	ATMP	20.0	0/0	--	0.28	225 ft. Southeast	
LF10-PT093	4/13/00	ATMP	20.3	0/0	--	0.28	225 ft. Southeast	
	7/24/00	ATMP	19.6	0/0	--	0.28	225 ft. Southeast	
	9/29/00	ATMP	18.8	0/0	--	0.28	225 ft. Southeast	
	1/30/01	ATMP	19.2	0/0	--	0.28	225 ft. Southeast	
	5/2/01	ATMP	19.2	0/0	--	0.28	225 ft. Southeast	
LF10-PT095	4/13/00	ATMP	20.5	0/0	--	0.38	300 ft. North	
	7/24/00	ATMP	19.8	0/0	--	0.38	300 ft. North	
	9/29/00	ATMP	19.0	0/0	--	0.38	300 ft. North	
	1/30/01	ATMP	19.3	0/0	--	0.38	300 ft. North	
	5/2/01	ATMP	19.6	0/0	--	0.38	300 ft. North	
LF10-PT100	4/13/00	ATMP	19.5	0/0	--	0.44	350 ft. Southeast	
	7/24/00	ATMP	19.8	0/0	--	0.44	350 ft. Southeast	
	9/29/00	ATMP	17.3	0/0	--	0.44	350 ft. Southeast	
	1/30/01	ATMP	19.2	0/0	--	0.44	350 ft. Southeast	
	5/2/01	ATMP	19.8	20/0	NT	0.44	350 ft. Southeast	

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Location	Date Monitored	Probe Press. (2) (in. of Hg)	Probe Oxygen (%)	(% Methane / % LEL)		Methane TLV (%) (5)	Distance/Direction From Nearest Probe/Structure	Comments
				Initial (3)	Sustained (4)			
LF10-GBT0S	4/13/00	NT	19.0	1.2/24	0/0	0.09	75 ft. Southeast	
	7/24/00	29.1	4.6	11.2/222	0/0	0.09	75 ft. Southeast	
	9/29/00	29.3	14.4	0.1/2	0/0	0.09	75 ft. Southeast	
	1/30/01	28.4	7.0	19.9/396	0/0	0.09	75 ft. Southeast	
	5/2/01	28.9	17.0	0.7/0.7	NT	0.09	75 ft. Southeast	
LF10-GBT0N	4/13/00	NT	NT	NT	NT	0.05	39 ft. East	Submerged in water
	7/24/00	29.1	19.9	0/0	--	0.05	39 ft. East	
	9/29/00	29.4	11.5	0/0	--	0.05	39 ft. East	
	1/30/01	29.0	5.6	0/0	--	0.05	39 ft. East	
	5/2/01	29.9	20	0.1/0.2	NT	0.05	39 ft. East	

**Notes:**

- Abbreviations: in. = inches; ft,bgs = feet below ground surface; Hg = Mercury; TLV = threshold limit value (see Note 5); NA = not applicable, atmospheric pressure; NT = not taken; GBT = gas barrier trench; N = north, S = south.
  - Pressure readings taken via pressure valve in unvented cap at top of probe.
  - Initial gas concentrations reading taken after purging probe a minimum of 30 seconds.
  - Sustained combustible gas concentration reading taken approximately one half hour after removing unvented lid from monitoring probe. This reading is only taken if methane and LEL were detected in the initial reading.
  - Methane TLV was calculated using the formula  $T = (0.00125)(H)$ , where T = threshold limit value, H = horizontal distance in feet between probe and closest occupied structure.
- ATMP - Atmospheric Pressure (Open bore hole).  
NT - Reading Not taken.

**Table 2-11**  
**Landfill 8 Groundwater Level Elevations: January and April 2001**  
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Well No.	Northing	Easting	Ref. Point Elevation (ft)	Screen Intervals (ft bgs)	Well Depth (ft)	1/25/01 GW Depth (ft, TOC)	1/25/01 GW Elevation (ft, MSL)	4/18/01* GW Depth (ft, TOC)	4/18/01* GW Elevation (ft, MSL)
EW-0801	654394.13	1557147.31	937.59	0.5-55.5	55.5	34.39	903.20	32.18	905.41
EW-0803	654453.14	1557213.49	936.73	5.0-55.5	55.5	52.82	883.91	42.17	894.56
EW-0805**	654525.61	1558593.29	938.54	5.5-55.5	55.5	52.33	886.21	38.27	900.27
EW-0807	654717.13	1557303.13	934.98	0.5-51.5	51.5	44.31	890.67	29.15	905.83
EW-0810	654916.57	1557327.28	931.04	5.0-55.5	55.0	46.35	884.69	26.81	904.23
EW-0812	655161.44	1557325.21	926.88	5.0-50	50.0	25.45	901.43	23.60	903.28
EW-0816	655241.68	1557243.03	932.99	5.0-55.0	55.0	28.71	904.28	27.03	905.96
02-003-M	655195.68	1557599.06	850.24	24.0-44.0	44.0	6.07	844.17	2.43	847.81
02-DM-81D-M	654372.65	1556701.67	949.67	48.5-53.5	94.4	31.77	917.90	27.91	921.76
02-DM-81S-M	654367.84	1556705.76	949.75	31.3-36.3	36.3	29.28	920.47	24.51	925.24
02-DM-82S-M	655031.69	1557606.43	893.37	59.5-64.5	64.5	13.75	879.62	9.83	883.54
02-DM-83D-M	655330.68	1557334.47	912.56	37.1-47.1	72.7	17.03	895.53	13.93	898.63
02-DM-83S-M	655335.36	1557328.28	913.32	12-17	17.0	19.74	893.58	17.03	896.29
02-DM-84-M	654725.79	1557463.27	914.49	52.8-57.8	57.8	22.28	892.21	15.56	898.93
02-DM-85-M	654423.84	1557385.79	894.81	47.5-52.5	52.5	6.75	888.06	3.65	891.16
LF08-MW01A	654132.39	1557154.35	905.69	23.8-29.4	42.2	9.27	896.42	4.59	901.10
LF08-MW01C	654123.81	1557144.25	905.92	7.2-15.0	17.0	7.26	898.66	6.87	899.05
LF08-MW02A	654418.18	1557374.09	894.07	43.7-53.7	56.0	7.20	886.87	4.65	889.42
LF08-MW02C	654446.85	1557382.85	895.61	11.7-21.7	24.0	14.88	880.73	12.24	883.37
LF08-MW03A	656331.63	1557401.92	888.38	22.7-27.7	42.0	21.25	--	17.31	871.07
LF08-MW03C	656340.94	1557399.60	888.08	8.7-13.7	15.5	16.21	--	12.36	875.72
LF08-MW04A	654838.64	1557618.29	913.45	51.3-63.0	68.0	32.99	880.46	29.18	884.27
LF08-MW04B	654829.68	1557624.11	912.76	29.5-37.0	39.0	29.07	883.69	20.84	891.92
LF08-MW04C	654829.72	1557613.08	914.02	21.0-26.0	28.0	BTP	--	16.00	898.02
LF08-MW05A	654691.07	1556722.51	949.38	59.8-69.8	88.0	33.57	915.81	30.34	919.04
LF08-MW05B	654680.84	1556732.28	949.17	41.7-51.7	53.8	23.76	925.41	19.84	929.33
LF08-MW05C	654689.63	1556732.16	949.30	17.75-27.75	30.0	23.42	925.88	18.52	930.78
LF08-MW06A	655113.55	1557659.08	891.30	53.5-73.8	80.0	30.03	861.27	27.55	863.75
LF08-MW06B	655107.64	1557653.36	890.63	32.75-42.75	45.0	14.03	876.60	10.24	880.39
LF08-MW06C	655113.21	1557649.54	891.72	7.0-12.0	NA	Dry	--	10.38	881.34
LF08-MW07A	654823.76	1556514.50	952.62	43.7-53.7	64.0	25.31	927.31	21.48	931.14
LF08-MW07B	654828.84	1556522.83	952.56	33.0-38.0	40.0	26.22	926.34	22.31	930.25
LF08-MW07C	654820.00	1556522.84	952.79	24.0-29.0	31.0	26.20	926.59	22.20	930.59

**Table 2-11**  
**Landfill 8 Groundwater Level Elevations: January and April 2001**  
**Wright-Patterson AFB, Ohio**  
**Page 2 of 2**

Well No.	Northing	Easting	Ref. Point Elevation (ft)	Screen Intervals (ft bgs)	Well Depth (ft)	1/25/01 GW Depth (ft, TOC)	1/25/01 GW Elevation (ft, MSL)	4/18/01* GW Depth (ft, TOC)	4/18/01* GW Elevation (ft, MSL)
LF08-MW08A	655232.00	1557715.00	878.70	16.7-32.0	36.0	6.20	872.50	2.56	876.14
LF08-MW08B	655239.55	1557719.53	878.63	16.67-22.0	24.0	9.15	869.48	2.52	876.11
LF08-MW08C	655231.55	1557721.65	877.72	6.67-11.67	14.0	9.35	868.37	6.67	871.05
LF08-MW09A	655488.16	1557938.20	855.38	25.2-30.2	32.5	17.71	837.67	15.40	839.98
LF08-MW09B	655482.68	1557938.41	856.01	13.67-18.67	20.5	16.75	839.26	13.71	842.30
LF08-MW10A	655375.00	1557511.15	911.86	53.7-63.8	66.00	27.62	884.24	23.78	888.08
LF08-MW10B	655386.20	1557506.18	912.27	29.8-34.8	39.0	24.30	887.97	21.68	890.59
LF08-MW10C	655385.42	1557520.23	911.83	17.5-22.5	25.0	23.50	888.33	20.02	891.81
LF08-MW11A	655424.57	1556948.45	934.37	49.8-54.8	57.0	14.60	919.77	11.40	922.97
LF08-MW11B	655430.98	1556930.30	934.95	31.75-42.0	44.3	13.80	921.15	9.99	924.96
LF08-MW11C	655417.40	1556933.44	935.18	12.25-22.5	23.9	13.19	921.99	9.10	926.08
LF08-MW12B	655539.63	1556787.87	936.03	26.2-33.5	35.8	13.86	922.17	9.68	926.35
LF08-MW12C	655555.19	1556783.70	936.16	6.2-11.2	13.5	13.68	922.48	9.38	926.78
LF08-MW13A	655659.27	1556720.56	934.01	76.2-86.2	88.5	16.16	917.85	13.21	920.80
LF08-MW13B	655667.30	1556706.41	933.22	18.5-28.5	30.9	12.08	921.14	7.85	925.37
LF08-MW13C	655673.31	1556728.07	933.48	7.2-17.2	19.7	12.57	920.91	8.34	925.14
LF08-MW14B	655433.83	1556557.46	942.45	24.4-28.9	38.0	14.38	928.07	9.71	932.74
LF08-MW14C	655452.02	1556567.21	941.75	7.0-17.0	21.2	13.08	928.67	8.04	933.71
LF08-MW15A	656864.03	1557676.57	841.67	6.0-11.0	20.6	NT	--	NT	--
LF08-MW15B	656868.90	1557663.70	841.98	16.0-31.0	35.0	NT	--	NT	--
LF08-MW101	655115.53	1557381.88	918.41	58.0-68.0	68.0	34.55	883.86	30.73	887.68
LF08-MW102	654754.18	1557350.72	930.77	63.0-73.0	73.0	39.10	891.67	35.88	894.89
LF08-MW103	654374.39	1557241.86	927.42	58.0-68.0	68.0	37.15	890.27	34.22	893.20

\* - The extraction system was not operating from April 12<sup>th</sup> through 18<sup>th</sup> 2001, due to a power outage.

\*\* - EW-0805 coordinates from Reinke and Associates "as built" landfill drawings.

NA - Information Not Available

NT - Not Taken; water level elevation at this well is not required for aquifer modeling.

R - These wells were removed from the Hydraulic Containment Monitoring Well Network in October 2000.

(See Table 4-7 in the OU1 System Performance Maintenance Plan.) These wells are located too far from LF8 to be influenced by the extraction wells.

Note: Survey data in boxes is from the WPAFB Civil Engineering survey September 2000.

ft - feet

bgs - below ground surface

TOC - Top of Casing

MSL - Mean Sea Level

**Table 2-12**  
**Landfill 10 Groundwater Level Elevations: January and April 2001**  
**Wright-Patterson AFB, Ohio**  
**Page 1 of 2**

Well No.	Northing	Easting	Ref. Point Elevation (ft)	Screened Interval (ft, bgs)	Well Depth (ft, bgs)	1/25/01 GW Depth (ft, TOC)	1/25/01 GW Elevation (ft, MSL)	4/18/01 <sup>(1)</sup> GW Depth (ft, TOC)	4/18/01 <sup>(1)</sup> GW Elevation (ft, MSL)
EW-1001	655230.37	1558362.57	908.28	3.0-53.0	53.0	23.70	884.58	17.88	890.4
EW-1002	655241.92	1558408.41	921.32	3.0-53.0	53.0	44.24	877.08	43.02	878.3
EW-1003	655193.79	1558528.58	915.68	6.0-66.0	66.0	19.65	896.03	17.50	898.2
EW-1004	655340.94	1558476.80	923.08	5.0-63.0	63.0	DRY	--	55.00	868.1
EW-1006	655401.26	1558419.23	915.24	5.0-38.0	38.0	30.55	884.69	25.62	889.6
EW-1008	655424.99	1558315.64	911.16	6.0-36.0	36.0	DRY	--	DRY	--
EW-1011	655790.42	1558542.21	909.31	6.0-66.0	66.0	67.41	841.90	56.78	852.5
EW-1012	655863.34	1558447.91	891.43	5.0-30.0	35.0	32.95	858.48	23.98	867.5
EW-1013	655951.73	1558455.01	886.21	5.0-30.0	35.0	31.80	854.41	22.00	864.2
EW-1014	656024.46	1558494.33	884.90	5.0-30.0	30.0	DRY	--	DRY	--
EW-1015	655860.99	1558659.77	907.94	5.0-62.0	62.0	46.50	861.44	46.28	861.7
EW-1016	655879.59	1558686.74	907.41	5.5-50.5	50.5	25.73	881.68	49.02	858.4
EW-1017	656048.61	1558708.08	901.79	3.0-48.0	48.0	DRY	--	46.56	855.2
EW-1018	656037.49	1558605.74	901.77	2.0-37.0	37.0	31.75	870.02	32.10	869.7
EW-1019	656160.04	1558562.30	884.74	2.0-52.0	52.0	36.98	847.76	36.08	848.7
EW-1020	656404.25	1558693.00	868.18	5.0-35.0	35.0	33.27	834.91	30.12	838.1
EW-1022	656372.20	1558803.48	870.55	5.0-65.0	65.0	81.52	789.03	50.76	819.8
EW-1024	656111.51	1558768.60	891.25	6.0-41.0	41.0	39.60	851.65	35.80	855.5
EW-1025	656300.98	1558823.81	877.61	3.0-43.0	43.0	37.85	839.76	28.08	849.5
EW-1026	656451.59	1558853.13	861.26	6.0-85.0	85.0	86.60	774.66	61.40	799.9
LF10-MW01A	654536.40	1558267.12	918.50	87.0-92.0	106.0	75.46	843.04	74.45	844.1
LF10-MW01B	654539.85	1558257.22	918.52	27.0-37.0	40.0	26.81	891.71	24.18	894.3
LF10-MW01C	654546.09	1558266.10	918.57	6.0-11.0	14.0	NT	--	12.52	906.1
LF10-MW03A	655460.55	1558771.86	907.49	86.0-91.0	93.0	89.97	817.52	89.89	817.6
LF10-MW04A	655635.32	1559287.45	898.90	184.2-194.2	218.0	NT	--	NT	--
LF10-MW04B	655637.96	1559284.08	898.86	113.65-123.65	126.0	99.20	799.66	98.10	800.8
LF10-MW04C	655641.80	1559278.79	898.87	56.0-61.0	65.0	NT	--	NT	--
LF10-MW05B	655310.63	1558091.29	858.44	27.0-34.2	37.0	20.89	837.55	20.69	837.8
LF10-MW05C	655303.83	1558090.40	859.06	3.42-8.42	11.0	9.05	850.01	7.81	851.3
LF10-MW06A	655744.29	1558817.18	894.62	74.8-84.8	87.1	71.90	822.72	72.00	822.6
LF10-MW06ADUP^	655745.53	1558807.09	894.78	55.0-65.0	66.0	67.05	827.73	66.98	827.8
LF10-MW06B	655743.21	1558789.40	894.09	37.15-42.50	44.0	35.04	859.05	*	--
LF10-MW07A	655550.86	1558314.65	897.54	64.0-69.0	82.0	53.75	843.79	53.28	844.3
LF10-MW07B	655561.94	1558307.90	897.01	19.3-24.3	36.0	DRY	--	DRY	--
LF10-MW07C	655538.93	1558304.49	897.72	9.33-14.33	18.0	DRY	--	9.08	888.6
LF10-MW08A-2	656238.18	1559055.16	863.35	79.9-89.9	92.2	67.20	796.15	65.22	798.1
LF10-MW08B	656214.05	1559057.11	865.09	11.5-16.5	18.7	9.42	855.67	8.62	856.5

**Table 2-12**  
**Landfill 10 Groundwater Level Elevations: January and April 2001**  
**Wright-Patterson AFB, Ohio**  
**Page 2 of 2**

Well No.	Northing	Easting	Ref. Point Elevation (ft)	Screened Interval (ft, bgs)	Well Depth (ft, bgs)	1/25/01 GW Depth (ft, TOC)	1/25/01 GW Elevation (ft, MSL)	4/18/01 <sup>(1)</sup> GW Depth (ft, TOC)	4/18/01 <sup>(1)</sup> GW Elevation (ft, MSL)
LF10-MW09A	656100.62	1558359.94	877.98	77.0-87.0	88.0	51.65	826.33	51.04	826.9
LF10-MW09B	656118.57	1558356.66	878.21	46.4-57.0	61.0	51.30	826.91	50.91	827.3
LF10-MW09C	656113.14	1558370.50	878.17	31.05-41.10	45.0	36.34	841.83	32.28	845.9
LF10-MW10A	656519.46	1558950.61	844.26	120.0-130.0	135.0	NT	--	NT	--
LF10-MW10B	656516.46	1558963.82	844.40	13.75-23.75	26.0	DRY	--	DRY	--
LF10-MW10C	656517.64	1558958.19	844.19	56.0-66.0	68.0	48.22	795.97	*	--
LF10-MW10D	656515.55	1558971.70	843.99	5.17-10.17	12.0	NT	--	NT	--
LF10-MW11A	656398.51	1558414.72	854.20	61.7-71.7	74.0	30.38	823.82	30.72	823.5
LF10-MW11B	656389.71	1558410.16	854.52	30.2-40.2	43.0	29.70	824.82	28.22	826.3
LF10-MW13A	656579.15	1558419.32	845.53	34.65-44.65	52.0	21.82	823.71	21.19	824.3
LF10-MW13C	656581.42	1558409.91	845.64	17.0-27.0	40.0	21.32	824.32	30.52	815.1
LF10-MW14A	653959.82	1558150.35	948.58	83.1-98.7	101.0	NT	--	73.60	875.0
LF10-MW102	655907.19	1558782.01	891.25	55.0-65.0	65.0	DRY	--	DRY	--
LF10-MW103	655461.27	1558594.10	909.65	32.0-42.0	42.0	32.46	877.19	DRY	--
LF10-MW104	655171.27	1558337.69	909.40	72.0-82.0	82.0	DRY	--	DRY	--
LF10-MW105	656122.67	1558549.02	873.24	53.0-63.0	65.0	46.43	826.81	46.06	827.2
01-DM-101S-M	655024.94	1558644.42	914.95	41.8-51.8	51.8	37.50	877.45	36.75	878.2
01-DM-101D-M	655032.81	1558645.94	914.54	78.8-83.8	85.0	DRY	--	DRY	--
01-DM-102S-M	656584.54	1558775.18	844.88	17.9-22.9	98.0	26.00	818.88	25.95	818.9
01-DM-102D-M	656591.27	1558748.12	844.27	51.5-56.5	98.0	48.44	795.83	46.15	798.1
01-004-M	655682.90	1558364.11	880.58	33.0-63.0	63.0	48.83	831.75	48.18	832.4
01-005-M	656098.13	1558202.86	839.72	36.0-46.0	46.0	9.91	829.81	9.30	830.4

<sup>(1)</sup> - The extraction system was not operating from April 12<sup>th</sup> through 18<sup>th</sup> 2001, due to a power outage.

NT - Not Taken; water level elevation at this well is not required for aquifer modeling.

NA - Information not Available

^ - LF10-MW06ADUP is a separate well from LF10-MW06A

\* - Lock is rusted shut, will remove and replace lock during next monitoring round.

NM - Not monitored during this round. These wells were not part of the Hydrologic Contamination Monitoring Well Network in July 1999.

(See Table 4-7 in the OU1 Operation Maintenance Plan.) They were added to the network to further define groundwater flow.

Survey data in boxes is from the Reinke and Associates (Surveyors) survey February 28, 2000.

ft - feet

bgs - below ground surface

MSL - Mean Sea Level

TOC - Top of Casing

**Table 2-13**  
**Landfill 10 Landfill Bottom Elevations**  
**Wright-Patterson AFB, Ohio**

Well No.	Easting (ft.)	Northing (ft.)	Total Depth (ft)	Top of Casing Elevation	Bottom of Landfill (ft)	Bottom of LF Elev. (ft)
EW-1001	1558373	655167	53.0	908.28	13.50	894.78
EW-1002	1558408	655241	53.0	921.78	25.00	896.78
EW-1003	1558528	655193	66.0	915.81	36.00	879.81
EW-1004	1558489	655275	63.0	923.08	27.00	896.08
EW-1006	1558419	655401	38.0	916.36	28.00	888.36
EW-1008	1558315	655424	36.0	911.05	19.00	892.05
EW-1026	1558884	656379	85.0	861.26	16.00	845.26
EW-1020	1558723	656335	35.0	868.18	15.00	853.18
EW-1022	1558803	656372	65.0	871.32	22.00	849.32
EW-1025	1558824	656301	43.0	877.61	18.00	859.61
EW-1019	1558588	656093	52.0	884.74	2.00	882.74
EW-1014	1558518	655958	30.0	884.9	7.00	877.90
EW-1013	1558477	655886	35.0	886.21	7.00	879.21
EW-1024	1558794	656041	41.0	891.25	15.00	876.25
EW-1012	1558469	655798	35.0	891.43	10.00	881.43
EW-1018	1558630	655969	37.0	901.77	22.00	879.77
EW-1017	1558732	655979	48.0	901.79	22.00	879.79
EW-1016	1558686	655879	50.5	907.88	32.00	875.88
EW-1015	1558681	655792	62.0	907.94	26.00	881.94
EW-1011	1558561	655724	66.0	909.31	30.00	879.31

Note: Survey completed by Reinke Associates for Kelchener Environmental, 1996

**Table 3-1**  
**OU5 Monthly Water Levels**  
**Wright-Patterson AFB, Ohio**  
**Page 1 of 2**

WPAFB  
Final  
LTM Report: April 2001  
Chapter 3  
March 2002

Well No.	Screened Interval (ft, bgs)	Reference Point Elevation (ft, MSL)	11/15/00 Depth to Water (ft, TOC)	11/15/00 Water Level Elev. (ft, MSL)	12/20/00 Depth to Water (ft, TOC)	12/20/00 Water Level Elev. (ft, MSL)	1/26/01 Depth to Water (ft, TOC)	1/26/01 Water Level Elev. (ft, MSL)
08-020-M	11 - 21	790.71	18.88	771.83	19.03	771.68	21.50	769.21
08-021-M	13 - 23	790.38	19.38	771.00	19.58	770.80	22.25	768.13
08-022-M	26 - 36	795.63	22.39	773.24	22.43	773.20	24.78	770.85
08-023-M	24 - 34	791.38	8.86	782.52	8.42	782.96	9.31	782.07
08-523-M	5.5 - 15.5	789.86	Dry	--	Dry	--	Dry	--
08-524-M	5.4 - 15.4	789.61	9.98	779.63	9.39	780.22	10.57	779.04
08-525-M	6 - 16	791.51	14.40	777.11	14.06	777.45	15.34	776.17
08-526-M	6.4 - 16.4	790.53	Dry	--	Dry	--	Dry	--
08-527-M	6 - 16	788.60	Dry	--	Dry	--	Dry	--
08-528-M	7.5 - 17.5	790.04	Dry	--	Dry	--	Dry	--
CW04-060	49.7 - 59.7	791.76	20.67	771.09	20.91	770.85	23.51	768.25
CW05-055	45 - 55	793.19	22.53	770.66	22.71	770.48	25.26	767.93
CW05-085	75 - 85	793.53	22.93	770.60	23.14	770.39	25.67	767.86
CW06-077	67 - 77	792.92	20.94	771.98	21.07	771.85	23.48	769.44
CW07-055	44.5 - 54.5	794.43	17.41	777.02	17.15	777.28	18.45	775.98
CW07-100	90 - 100	792.34	13.25	779.09	12.98	779.36	13.70	778.64
CW08-017	6.8 - 16.8	792.32	14.91	777.41	14.40	777.92	14.70	777.62
CW08-055	44.7 - 54.7	792.06	12.87	779.19	12.60	779.46	13.44	778.62
CW08-110	100 - 110	790.95	11.95	779.00	11.71	779.24	12.35	778.60
CW09-073	63 - 73	790.95	20.62	770.33	21.08	769.87	23.75	767.20
CW10-055		792.30	NM	--	23.97	768.33	26.42	765.88
CW12-085	75 - 85	789.33	8.56	780.77	8.21	781.12	9.09	780.24
CW13-085	75 - 85	790.96	8.14	782.82	7.72	783.24	8.60	782.36
CW15-055	45 - 55	790.78	21.44	769.34	21.96	768.82	24.55	766.23
CW21-040	30 - 40	794.88	15.79	779.09	15.53	779.35	16.77	778.11
MW130S	29.03 - 38.8	792.12	19.33	772.79	19.79	772.33	22.52	769.60
MW131M	58.3 - 68.3	786.92	16.03	770.89	16.30	770.62	18.95	767.97
MW131D	105 - 115	787.83	16.84	770.99	17.13	770.70	19.76	768.07
MW132S	38.5 - 48.5	789.46	20.22	769.24	20.49	768.97	23.11	766.35
MW133S	43.4 - 53.4	789.11	19.38	769.73	19.80	769.31	22.45	766.66
MW133D	59.5 - 69.5	788.72	18.79	769.93	19.19	769.53	21.85	766.87
HD-10D	59 - 69	792.80	22.02	770.78	21.32	771.48	24.97	767.83
HD-11D	71 - 81	791.42	21.62	769.80	20.84	770.58	23.42	768.00
HD-12S	14 - 24	791.13	BTP	--	BTP	--	BTP	--
HD-12M	44 - 54	792.03	20.37	771.66	20.52	771.51	23.05	768.98
HD-13S	22.5 - 32.5	789.17	18.29	770.88	18.53	770.64	21.16	768.01
HD-13D	96 - 106	789.96	NM	--	19.36	770.60	21.98	767.98
HD-14S	22.5 - 32.5	790.47	21.37	769.10	21.81	768.66	24.40	766.07
TTW-01	45 - 65	791.46	20.67	770.79	20.89	770.57	NM	--
EW-1	9.5 - 73.5	809.67	39.87	769.80	40.20	769.47	42.83	766.84

**Table 3-1**  
**OU5 Monthly Water Levels**  
**Wright-Patterson AFB, Ohio**  
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Well No.	2/16/01		3/21/01		4/30/01	
	Depth to Water (ft, TOC)	Water Level Elev. (ft, MSL)	Depth to Water (ft, TOC)	Water Level Elev. (ft, MSL)	Depth to Water (ft, TOC)	Water Level Elev. (ft, MSL)
08-020-M	17.55	773.16	17.18	773.53	16.51	774.20
08-021-M	18.04	772.34	17.58	772.80	16.86	773.52
08-022-M	21.17	774.46	20.73	774.90	20.28	775.35
08-023-M	8.22	783.16	7.13	784.25	7.65	783.73
08-523-M	DRY	DRY	DRY	DRY	8.02	781.84
08-524-M	9.29	780.32	9.09	780.52	8.48	781.13
08-525-M	13.40	778.11	13.24	778.27	12.50	779.01
08-526-M	17.02	773.51	BTP	BTP	16.25	774.28
08-527-M	15.85	772.75	15.67	772.93	15.00	773.60
08-528-M	17.65	772.39	17.33	772.71	16.58	773.46
CW04-060	19.25	772.51	19.87	771.89	18.28	773.48
CW05-055	21.18	772.01	20.74	772.45	19.39	773.80
CW05-085	21.64	771.89	21.20	772.33	19.64	773.89
CW06-077	19.56	773.36	19.24	773.68	18.51	774.41
CW07-055	16.31	778.12	16.20	778.23	15.49	778.94
CW07-100	11.95	780.39	11.98	780.36	11.34	781.00
CW08-017	14.08	778.24	13.91	778.41	13.12	779.20
CW08-055	11.65	780.41	11.69	780.37	11.02	781.04
CW08-110	10.57	780.38	10.76	780.19	9.95	781.00
CW09-073	18.91	772.04	19.01	771.94	18.26	772.69
CW10-055	21.46	770.84	21.51	770.79	NM	NM
CW12-085	7.67	781.66	7.65	781.68	7.15	782.18
CW13-085	7.53	783.43	7.48	783.48	7.03	783.93
CW15-055	19.59	771.19	19.68	771.10	18.90	771.88
CW21-040	15.12	779.76	14.95	779.93	14.40	780.48
MW130S	17.68	774.44	18.56	773.56	17.54	774.58
MW131M	14.50	772.42	14.30	772.62	13.52	773.40
MW131D	15.30	772.53	15.15	772.68	14.39	773.44
MW132S	18.28	771.18	18.24	771.22	17.48	771.98
MW133S	17.83	771.28	17.62	771.49	16.88	772.23
MW133D	17.28	771.44	17.05	771.67	16.35	772.37
HD-10D	20.61	772.19	20.25	772.55	19.62	773.18
HD-11D	19.26	772.16	18.86	772.56	17.75	773.67
HD-12S	BTP	BTP	BTP	BTP	17.18	773.95
HD-12M	18.98	773.05	18.65	773.38	17.95	774.08
HD-13S	16.90	772.27	16.47	772.70	15.78	773.39
HD-13D	17.69	772.27	17.33	772.63	16.58	773.38
HD-14S	19.60	770.87	19.45	771.02	18.70	771.77
TTW-01	19.32	772.14	18.91	772.55	17.72	773.74
EW-1	38.75	770.92	38.20	771.47	35.85	773.82

ft - feet  
bgs - below ground surface  
TOC - Top of casing  
MSL - Mean sea level  
NM - Not Measured

**Table 3-2**  
**OU5 Groundwater Treatment System**  
**Water Quality Analytical Results and VOCs Removed**  
**Wright-Patterson AFB, Ohio**

Units			Nov-00	Dec-00	Jan-01	Feb-01	Mar-01	Apr-01
<b>VOCs</b>								
cis-1,2-DCE	µg/L	Influent	NM	NM	NM	NM	NM	16.4
	µg/L	Effluent	NM	NM	NM	NM	NM	ND
Vinyl Chloride	µg/L	Influent	ND	ND	ND	ND	ND	ND
	µg/L	Effluent	ND	ND	ND	ND	ND	ND
Chlorobenzene	µg/L	Influent	ND	ND	ND	ND	ND	ND
	µg/L	Effluent	ND	ND	ND	ND	ND	ND
TCE	µg/L	Influent	56.0	34.0	32.2	30.4	27.9	31.4
	µg/L	Effluent	ND	ND	ND	ND	ND	ND
Methylene Chloride	µg/L	Influent	ND	ND	ND	ND	ND	ND
	µg/L	Effluent	ND	ND	ND	ND	ND	ND
Chloroform	µg/L	Influent	ND	ND	ND	ND	ND	ND
	µg/L	Effluent	ND	ND	ND	ND	ND	ND
<b>Analyte</b>								
pH	SU	Influent	7.40	7.60	7.04	7.16	7.20	6.93
	SU	Effluent	8.50	8.50	8.14	8.43	8.44	8.21
Hardness	mg CaCO <sub>3</sub> /L	Influent	437	434	430	440	460	470
	mg CaCO <sub>3</sub> /L	Effluent	499	461	470	470	452	470
TSS	mg/L	Influent	ND	ND	2.0	2.0	1.0	ND
	mg/L	Effluent	ND	ND	3.0	6.0	3.0	44
Iron (Total)	mg/L	Influent	1.71	1.71	2020	1670	1760	5810
	mg/L	Effluent	1.67	1.81	1700	1710	2010	2310
Iron (Dissolved)	mg/L	Influent	ND	1.38	2000	1800	1600	6410
	mg/L	Effluent	ND	ND	101	757	ND	3300
<b>Total Volume Discharged (in millions of gallons)</b>			21.3	21.7	21.6	18.3	20.7	12.1
<b>Total Pounds of TCE Removed</b>			9.95	6.15	5.80	4.65	4.83	3.07
<b>Total Pounds of All VOCs Removed</b>			9.95	6.15	5.80	4.65	4.83	4.67

J - Estimated Result. Concentration less than reporting limit and above detection limit.  
B - Method Blank Detection  
ND - Not Detected  
NM - Analyte Not Measured  
DCE - Dichloroethene  
TCE - Trichloroethene

SU - Standard Units  
mg - milligrams  
µg - micrograms  
L - liter  
CaCO<sub>3</sub> - Calcium Carbonate  
TSS - Total Suspended Solids

**Table 4-1**  
**OU4 Landfill Gas Monitoring Results: April 2001**  
**Wright-Patterson AFB, Ohio**  
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Monitoring Location	Date	CO <sub>2</sub> %	O <sub>2</sub> %	CH <sub>4</sub> %	LEL %	Atmos. Press. (in. Hg)
LG-1	04/17/98	1.7	18.6	0	0	NM
	10/14/98	5.9	16.1	0	0	NM
	01/12/99	0.0	16.9	0	0	NM
	04/15/99	2.6	18.1	0	0	NM
	07/20/99	0.0	18.8	0	0	NM
	10/22/99	2.9	17.5	0	0	NM
	01/17/00	0.9	18.9	0	0	NM
	04/10/00	0.0	20.3	0	0	29.5
	07/25/00	7.2	9.802	0	0	29.2
	09/28/00	0.7	18.6	0	0	29.3
	01/29/01	3.0	17.5	0	0	29.1
	04/26/01	2.6	16.3	0	0	29.1
LG-2	04/17/98	3.7	21.7	0	0	NM
	10/14/98	7.6	13.1	0	0	NM
	01/12/99	10.1	5.2	0	0	NM
	04/15/99	3.1	8.2	0	0	NM
	07/20/99	7.0	11	0	0	NM
	10/22/99	7.8	13.8	0	0	NM
	01/17/00	3.8	15	0	0	NM
	04/10/00	1.3	14.4	0	0	29.5
	07/25/00	6.6	4.3	0	0	29.2
	09/28/00	9.5	10	0	0	29.3
	01/29/01	5.7	11.1	0	0	29.1
	04/26/01	5.2	8.9	0	0	29.1
LG-3	04/17/98	2.9	22.9	0	0	NM
	10/14/98	3.8	18.4	0	0	NM
	01/12/99	2.0	19	0	0	NM
	04/15/99	2.1	15.4	0	0	NM
	07/20/99	3.5	17.1	0	0	NM
	10/22/99	2.3	19.2	0	0	NM
	01/17/00	1.0	18.4	0	0	NM
	04/10/00	0.2	17.7	0	0	29.5
	07/25/00	5.0	13.02	0	0	29.2
	09/28/00	3.6	16.8	0	0	29.3
	01/29/01	2.3	16.6	0	0	29.1
	04/26/01	3.0	5.9	0	0	29.1
LG-6	04/17/98	2.6	13.7	0	0	NM
	10/14/98	5.1	13.9	0	0	NM
	01/12/99	3.5	4.8	0	0	NM
	04/15/99	1.9	17.4	0	0	NM
	07/20/99	1.7	16	0	0	NM
	10/22/99	4.4	15.2	0	0	NM
	01/17/00	2.0	18.3	0	0	NM
	04/10/00	1.7	17	0	0	29.5
	07/25/00	2.8	12.5	0	0	29.2
	09/28/00	2.7	13.8	0	0	29.3
	01/29/01	2.1	16.1	0	0	29.1
	04/26/01	2.3	14.2	0	0	29.1

**Table 4-1**  
**OU4 Landfill Gas Monitoring Results: April 2001**  
**Wright-Patterson AFB, Ohio**  
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Monitoring Location	Date	CO <sub>2</sub> %	O <sub>2</sub> %	CH <sub>4</sub> %	LEL %	Atmos. Press. (in. Hg)
LG-7	04/17/98	0.8	18.7	0	0	NM
	10/14/98	2.1	18.7	0	0	NM
	01/12/99	1.0	2.8	0	0	NM
	04/15/99	0.9	20.1	0	0	NM
	07/20/99	0.7	18.6	0	0	NM
	10/22/99	1.0	19.2	0	0	NM
	01/17/00	0.7	19.2	0	0	NM
	04/10/00	0.7	19	0	0	29.5
	07/25/00	1.6	18.1	0	0	29.2
	09/28/00	1.3	17.8	0	0	29.3
	01/29/01	0.6	19.1	0	0	29.1
	04/26/01	0.7	19.1	0	0	29.1
LG-8	04/17/98	1.9	18.8	0	0	NM
	10/14/98	4.0	15.6	0	0	NM
	01/12/99	3.2	15.7	0	0	NM
	04/15/99	2.6	17	0	0	NM
	07/20/99	0.8	18.2	0	0	NM
	10/22/99	3.2	16.2	0	0	NM
	01/17/00	2.2	18.8	0	0	NM
	04/10/00	0.3	19.4	0	0	29.5
	07/25/00	2.4	16.5	0	0	29.2
	09/28/00	2.1	16.2	0	0	29.3
	01/29/01	1.8	17.4	0	0	29.1
	04/26/01	1.6	17.4	0	0	29.1
LG-9	04/17/98	1.8	14	0	0	NM
	10/14/98	4.2	10.4	0	0	NM
	01/12/99	0.0	20.8	0	0	NM
	04/15/99	1.7	17	0	0	NM
	07/20/99	1.5	14.4	0	0	NM
	10/22/99	3.0	12.6	0	0	NM
	01/17/00	1.4	17.4	0	0	NM
	04/10/00	1.5	14.5	0	0	29.5
	07/25/00	2.6	12.5	0	0	29.2
	09/28/00	2.3	14.5	0	0	29.3
	01/29/01	1.6	16	0	0	29.1
	4/26/01	1.5	15.2	0	0	29.1
LG-10	04/17/98	8.3	0	1.9	16	NM
	10/14/98	9.2	0	3.1	NM	NM
	2/3/99*	7.5	0.2	2.9	60	NM
	04/15/99	8.4	1.4	2.2	48	NM
	07/20/99	7.9	0.5	1.8	36	NM
	10/22/99	8.9	0	2.7	54	NM
	01/17/00	Could not open vault (damaged)				
	04/10/00	Could not open vault (damaged)				
	07/25/00	Could not open vault (damaged)				
	09/28/00	Could not open vault (damaged)				
	01/29/01	0.0	19.6	0	0	29.1
	04/26/01	7.8	0	2.5	50	29.1

**Table 4-1**  
**OU4 Landfill Gas Monitoring Results: April 2001**  
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Monitoring Location	Date	CO <sub>2</sub> %	O <sub>2</sub> %	CH <sub>4</sub> %	LEL %	Atmos. Press. (in. Hg)
Bldg. 878A NW	04/17/98	NS	NS	NS	NS	NS
	10/14/98	0.0	20.3	0	0	NM
	01/12/99	0.0	21	0	0	NM
	04/15/99	0.1	21.2	0	0	NM
	07/20/99	0.0	19.1	0	0	NM
	10/22/99	0.0	20.5	0	0	NM
	01/17/00	0.0	19.5	0	0	NM
	04/10/00	0.0	20.2	0	0	29.5
	07/25/00	0.0	20.3	0	0	29.2
	09/28/00	0.0	19.3	0	0	29.3
	01/29/01	0.0	19.8	0	0	29.1
	04/26/01	0.0	20.5	0	0	29.1
Bldg. 878A SE	04/17/98	NS	NS	NS	NS	NS
	10/14/98	0.0	20.3	0	0	NM
	01/12/99	0.0	21	0	0	NM
	04/15/99	0.0	21.2	0	0	NM
	07/20/99	0.0	19.1	0	0	NM
	10/22/99	0.0	20.5	0	0	NM
	01/17/00	0.0	18.6	0	0	NM
	04/10/00	0.0	20.2	0	0	29.5
	07/25/00	0.0	20.402	0	0	29.2
	09/29/00	0.0	18.8	0	0	29.3
	01/29/01	0.0	20	0	0	29.1
	04/26/01	0.0	20.5	0	0	29.1

\* - Frozen lid, collected reading on 2/3/99

CO<sub>2</sub> = Carbon dioxide

O<sub>2</sub> = Oxygen

CH<sub>4</sub> = Methane

LEL = Lower Explosive Level

NM = Not measured

NS = Not sampled

**Table 5-1**  
**OU2 Round 8 Groundwater Monitoring Field Parameters**  
**Wright-Patterson AFB, Ohio**  
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Well Number	Sampling Round	Date Sampled	Depth to Water (ft, TOC)	Water Level Elevation (ft, MSL)	Temp. (C°)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Ferrous Iron (mg/L)
<b>Wells Sampled Semi-Annually</b>											
<b>04-016-M</b> (MP Elev.; ft,MSL) 820.9	Baseline	5/21/97	11.15	809.75	12.4	7.11	0.843	17	-196.0	1.73	7.92
	1	10/22/97	12.62	808.28	14.8	6.99	0.775	2	-208.0	5.63	7.64
	2	4/28/98	10.65	810.25	12.1	7.09	0.748	4	-287.1	0.00	4.33
	3	10/15/98	11.51	809.39	15.7	6.96	0.819	4	-198.8	0.02	7.10
	4	4/13/99	10.50	810.40	14.2	8.62	0.825	5	-180.5	0.46	3.90
	5	10/11/99	13.00	807.90	15.7	7.05	0.571	9	-146.7	ERR	1.89
	6	4/25/00	7.69	813.21	13.8	7.16	1.1	23	-131.1	ERR	8.88
	7	10/19/00	9.60	811.30	15.1	7.12	0.898	0	-155.8	0.04	5.10
	8	4/17/01	8.85	812.05	12.1	6.87	0.691	2	-161.2	0.31	5.10
<b>04-518-M</b> (MP Elev.; ft,MSL) 820.41	Baseline	5/13/97	11.00	809.41	10.8	7.06	0.8	NA	-95.0	1.87	2.36
	1	10/21/97	12.89	807.52	18.9	6.87	0.688	NA	-138.0	4.54	2.84
	2	4/29/98	11.25	809.16	10.9	7.19	0.822	0	-84.3	0.96	4.20
	3	10/15/98	12.00	808.41	20.1	6.53	0.766	9	-179.1	0.12	2.88
	4	4/13/99	11.10	809.31	10.0	6.83	1.029	3	-65.8	1.19	4.68
	5	10/11/99	13.94	806.47	20.2	6.91	0.814	2	-210.3	0.10	3.11
	6	4/24/00	10.85	809.56	11.6	6.76	2.07	24	-140.1	ERR	2.19
	7	10/17/00	12.51	807.90	18.9	7.07	0.742	ERR	-95.0	0.38	6.00*
	8	4/18/01	11.95	808.46	9.7	6.65	1.77	0	-54.2	0.01	5.08
<b>OW-1</b> (MP Elev.; ft,MSL) 817.2	Baseline	5/14/97	8.50	808.70	12.8	6.94	0.85	2	-136.0	1.00	5.10
	1	10/20/97	9.95	807.25	17.8	7.07	0.689	1	-141.0	3.59	5.46
	2	4/28/98	8.55	808.65	12.1	7.15	0.693	0	-275.7	0.00	1.99
	3	10/15/98	9.14	808.06	18.3	6.55	0.761	1	-156.0	7.93	4.66
	4	4/13/99	8.31	808.89	12.2	8.86	0.84	4	123.7	0.10	1.36
	5	10/13/99	10.81	806.39	18.4	6.87	0.846	0	-4.9	0.38	3.06
	6	4/24/00	7.89	809.31	12.6	7.38	1.141	0	-100.2	1.95	4.22
	7	10/17/00	9.49	807.71	17.8	7.28	0.918	ERR	9.68	0.23	4.46
	8	4/16/01	9.11	808.09	11.8	6.95	0.644	6	116.8	ERR	3.30

**Table 5-1**  
**OU2 Round 8 Groundwater Monitoring Field Parameters**  
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Well Number	Sampling Round	Date Sampled	Depth to Water (ft, TOC)	Water Level Elevation (ft, MSL)	Temp. (C°)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Ferrous Iron (mg/L)
<b>OW-2</b> (MP Elev.; ft,MSL) 819.77	Baseline	5/21/97	12.71	807.06	12.9	6.90	0.864	3	-145.0	2.68	5.10
	3	10/21/98	13.48	806.29	15.3	6.53	0.794	1	-123.3	0.78	5.40
	4	4/13/99	13.19	806.58	14.4	7.18	0.532	0	-116.6	0.05	1.82
	5	10/11/99	15.20	804.57	15.3	6.99	0.88	1	-168.7	0.14	3.52
	6	4/25/00	10.02	809.75	14.2	7.04	0.919	11	-133.4	ERR	8.32
	7	10/19/00	11.69	808.08	15.0	6.64	0.61	7	-129.5	0.69	12.40
	8	4/17/01	10.97	808.80	12.9	6.56	0.821	0	-128.9	0.31	5.10
<b>OW-3</b> (MP Elev.; ft,MSL) 820.95	Baseline	5/22/97	14.54	806.41	12.4	7.00	0.878	7	-118.0	2.61	3.08
	1	10/23/97	15.92	805.03	17.6	6.88	0.77	2	-154.0	4.58	7.62
	2	4/29/98	14.30	806.65	11.5	7.14	0.757	6	-305.0	0.00	6.76
	3	10/15/98	15.10	805.85	19.1	7.13	0.837	2	-140.6	0.13	4.58
	4	4/13/99	14.40	806.55	12.0	7.20	0.833	7	-125.1	0.00	4.60
	5	10/11/99	16.70	804.25	18.0	7.09	0.846	1	-166.9	0.19	4.72
	6	4/25/00	12.04	808.91	12.6	7.20	0.91	52	-121.9	1.95	1.99
	7	10/19/00	13.60	807.35	17.5	6.76	0.558	ERR	-148.8	0.26	7.40
	8	4/17/01	13.02	807.93	11.7	6.81	0.666	4	289.1	ERR	5.10
<b>OW-4</b> (MP Elev.; ft,MSL) 817.2	Baseline	5/27/97	11.15	806.05	12.6	7.09	0.806	48	-93.0	1.78	9.58
	1	10/22/97	12.39	804.81	15.4	6.92	0.785	29	-136.0	4.76	9.96
	2	4/29/98	10.95	806.25	12.9	7.29	0.837	0	-117.7	1.03	9.24
	3	10/16/98	11.33	805.87	18.3	6.40	0.844	43	-111.2	0.13	5.86
	4	4/14/99	11.01	806.19	12.5	7.13	0.537	ERR	-123.5	0.12	1.89
	5	10/11/99	12.68	804.52	15.7	7.01	0.813	6	-193.9	0.14	3.82
	6	4/25/00	10.11	807.09	13.3	7.12	1.28	52	-107.7	1.61	1.65
	7	10/19/00	11.56	805.64	16.2	6.54	0.561	ERR	-127.4	0.09	10.00
	8	4/17/01	12.44	804.76	12.7	6.82	0.685	12	188.9	0.22	5.10
<b>P18-1</b> (MP Elev.; ft,MSL) 816.72	Baseline	5/16/97	10.65	806.07	10.7	6.49	NR	>100	-50.0	2.12	5.10
	1	10/21/97	Dry	--	--	--	--	--	--	--	--
	2	4/29/98	BTP	--	12.6	6.73	0.783	23	-188.4	1.36	7.98
	3	10/16/98	11.22	805.50	Insufficient water for parameters						4.28
	4	4/13/99	9.69	807.03	12.7	6.96	0.566	1	-81.1	0.08	1.81
	5	10/11/99	Dry								
	6	4/24/00	BTP	--	13.8	6.75	0.937	29	-123.9	ERR	3.40
	7	10/19/00	BTP	--	19.1	6.85	1.00	1	-83.4	5.30	5.10
	8	4/17/01	BTP	--	9.9	6.44	0.732	18	149.0	1.99	5.10

**Table 5-1**  
**OU2 Round 8 Groundwater Monitoring Field Parameters**  
**Wright-Patterson AFB, Ohio**  
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WPAFB  
Final  
LTM Report: April 2001  
Chapter 5  
March 2002

Well Number	Sampling Round	Date Sampled	Depth to Water (ft, TOC)	Water Level Elevation (ft, MSL)	Temp. (C°)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Ferrous Iron (mg/L)
<b>P18-2</b> (MP Elev.; ft,MSL) 820.04	Baseline	5/16/97	13.67	806.37	12.0	6.73	0.881	7	-85.0	1.96	5.10
	1	10/21/97	Dry	--	--	--	--	--	--	--	--
	2	4/29/98	BTP	--	10.9	6.58	1.13	9	-234.9	0.14	19.00
	3	10/16/98	BTP	--	16.8	6.21	1.05	7	-73.6	0.45	6.50
	4	4/13/99	BTP	--	11.7	8.10	1.02	3	-84.8	3.05	3.47
	5	10/11/99	Dry	--	--	--	--	--	--	--	--
	6	4/24/00	BTP	--	12.2	6.82	1.15	21	-120.1	1.73	6.04
	7	10/19/00	BTP	--	Insufficient water for parameters				--	--	4.65
	8	4/17/01	12.10	807.94	10.6	6.40	1.34	60	708.7	ERR	5.09
<b>NEA-MW20-2S</b> (MP Elev.; ft,MSL) 821.49	Baseline	5/22/97	10.10	811.39	12.4	6.80	0.871	3	-71.0	3.17	1.10
	1	10/21/97	11.80	809.69	17.4	6.58	0.687	3	-176.0	4.06	1.30
	2	4/20/98	9.31	812.18	11.6	7.03	0.781	7	-102.8	1.87	9.70
	3	10/15/98	10.54	810.95	18.4	6.39	0.697	137	-153.3	ERR	5.92
	4	4/13/99	9.66	811.83	11.5	6.94	0.522	0	-110.3	0.12	1.69
	5	10/11/99	12.44	809.05	18.7	6.77	0.584	0	-172.7	ERR	1.92
	6	4/20/00	8.94	812.55	15.1	6.74	0.97	17	-189.3	ERR	7.40
	7	10/17/00	10.91	810.58	17.1	6.92	0.71	ERR	-158.8	0.17	6.40
	8	4/19/01	10.21	811.28	12.2	6.90	0.943	0	-124.8	0.06	1.77
<b>NEA-MW21-3S</b> (MP Elev.; ft,MSL) 820.85	2	4/29/98	11.89	808.96	Not sampled, free product				--	--	--
	3	10/15/98	12.69	808.16	Not sampled, free product				--	--	--
	4	4/13/99	11.00	809.85	11.9	7.12	0.822	21	-54.9	2.51	2.08
	5	10/11/99	14.19	806.66	19.2	7.03	0.578	14	-103.8	ERR	1.80
	6	4/24/00	12.96	807.89	12.7	7.19	0.93	9	-71.7	4.80	5.08
	7	10/19/00	12.51	808.34	16.3	6.69	0.937	3	-40.4	7.90	3.11
	8	4/18/01	12.83	808.02	11.3	6.76	1.11	0	77.5	1.00	2.68

**Table 5-1**  
**OU2 Round 8 Groundwater Monitoring Field Parameters**  
**Wright-Patterson AFB, Ohio**  
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WPAFB  
Final  
LTM Report: April 2001  
Chapter 5  
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Well Number	Sampling Round	Date Sampled	Depth to Water (ft, TOC)	Water Level Elevation (ft, MSL)	Temp. (C°)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mV)	DO (mg/L)	Ferrous Iron (mg/L)
<b>NEA-MW26-3S</b> (MP Elev.; ft,MSL) 817.6	6	4/24/00	12.74	804.86	12.8	7.18	1.14	0	-137.3	1.65	1.23
	7	10/17/00	14.17	803.43	16.9	7.19	1.00	ERR	-279.9	0.33	14.00
	8	4/17/01	13.59	804.01	10.9	6.58	0.96	0	-224.8	0.40	0.70
<b>NEA-MW28-4I</b> (MP Elev.; ft,MSL) 819.92	Baseline	5/14/97	12.33	807.59	14.3	7.19	0.817	12	-169.0	0.77	5.10
	1	10/20/97	13.99	805.93	14.9	7.44	0.725	2	-121.0	3.83	6.92
	2	4/28/98	13.07	806.85	13.6	7.29	0.857	0	-121.0	9.65	3.34
	3	10/15/98	13.13	806.79	14.9	7.17	0.947	2	-143.3	0.04	4.76
	4	4/13/99	12.99	806.93	13.7	7.31	0.498	12	-119.9	0.21	1.79
	5	10/11/99	14.83	805.27	15.7	7.21	0.999	2	-185.1	0.19	3.42
	6	4/24/00	11.91	808.01	13.6	7.02	0.857	82	-131.9	0.21	1.98
	7	10/17/00	13.60	806.32	15.0	7.24	1.38	ERR	9.25	1.02	5.05
<b>NEA-MW28-5S</b> (MP Elev.; ft,MSL) 818.5	7**	12/8/00	14.81	803.69	14.9	6.92	1.00	0	-126.20	0.09	5.09
	8	4/17/01	11.95	806.55	12.2	7.19	1.03	20	-114.9	0.97	NA
<b>Wells Sampled Periodically</b>											
<b>NEA-MW25-1D</b> (MP Elev.; ft,MSL) 820.1	8	4/16/01	11.20	808.90	12.3	7.06	0.807	2	-103.80	0.17	1.16
<b>NEA-MW25-2I</b> (MP Elev.; ft,MSL) 820.1	8	4/16/01	11.38	808.72	12.3	6.93	0.837	8	-123.00	0.97	1.75

MP - Monitoring point  
BTP - Below top of pump  
DO - Dissolved Oxygen  
NA - Not available  
NR - No reading  
mV - millivolts

mg/L - milligrams per liter  
ft,TOC - feet below top of casing  
ft, MSL - feet, ref. Mean sea level  
C° - Degrees Celsius  
SU - Standard Units  
ORP - Oxygen Reduction Potential

\* - Iron measurements were taken on 10/19/00.  
\*\* - Well monument was incorrectly tagged in the field (MW28-4I).  
Actual well (MW28-5S) was sampled in December 2000 for Round 7.  
ERR - Equipment error  
NTU - Nephelometric turbidity units  
mS/cm - microSeimen per centimeter

**Table 5-2**  
**OU2 Round 8 and Historical**  
**Groundwater Analytical Results**  
**Wright-Patterson AFB, Ohio**  
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Well Number:	04-016-M											04-518-M				
Sample Round:			Baseline	1	2	3	4	5	6	7	8				Baseline	1
Date Sampled:	9/2/88	8/12/91	5/21/97	10/22/97	4/28/98	10/15/98	4/13/99	10/11/99	4/25/00	10/19/00	4/17/01	9/6/88	DUP	8/9/91	5/13/97	10/21/97
<b>PARAMETERS:</b>																
Ethane (ppm)	NA	NA	0.002	ND	0.001	0.002	0.001	0.002	0.002	0.00083	0.0011	NA	NA	NA	ND	ND
Ethene (ppm)	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND
Methane (ppm)	NA	NA	19.4	25.6	15.4	12.7	9.59	14.7	12.9	7.0 DB	4.1 DB	NA	NA	NA	7.67	12.6
Benzene (ug/L)	63	440	8.8	12	6.6	8.6	2.6	14	5.4*	9.2	3.8	560	2600	27	160	42
Toluene (ug/L)	ND	NA	ND	5.6	12	6.5	1.2	6.1	3.0*	0.77 J	0.68 J	2500	13000	ND	5.6	2.3
Ethylbenzene (ug/L)	ND	ND	ND	6.6	50	31	28	67	ND	ND	1.4	1500	8300	100	290	45
Xylenes (Total) (ug/L)	ND	ND	ND	9.7	3.4	ND	ND	4.0	37	ND	3.9	5700	36000	46	23	12
Total BTEX (ug/L)	63	440	8.8	33.9	72	46.1	31.8	91.1	45.4	9.97	9.78	10260	59900	173	478.6	101.3
Sulfate (mg/L)	NA	0.58	ND	ND	ND	ND	ND	ND	ND	ND	5.2	NA	NA	0.11	ND	ND
Nitrate (mg/L)	NA	0.142	ND	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	0.094	ND	ND

**Table 5-2**  
**OU2 Round 8 and Historical**  
**Groundwater Analytical Results**  
**Wright-Patterson AFB, Ohio**  
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Well Number:	04-518-M								NEA-MW20-2S							
Sample Round:	2	3	4	4	5	6	7	8				Baseline	1	2	3	4
Date Sampled:	4/29/98	10/15/98	4/13/99	DUP	10/11/99	4/24/00	10/17/00	4/18/01	12/16/92	5/5/93	9/8/93	5/22/97	10/21/97	4/17/98	10/15/98	4/13/99
<b>PARAMETERS:</b>																
Ethane (ppm)	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	0.027
Ethene (ppm)	ND	ND	ND	ND	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	ND	ND
Methane (ppm)	13.4	9.99	14.2	16.3	11.8	12.8	4.7 DB	5.0 DB	NA	NA	NA	21.3	24.4	32.2	16	25.5
Benzene (ug/L)	100	52	120	250	16	160	20	23	75	39	14	46	45	39	22	37
Toluene (ug/L)	17	43	12	25	13	ND	ND	ND	ND	ND	1.0	ND	7.1	ND	ND	ND
Ethylbenzene (ug/L)	170	41	680	460	6.8	64	ND	5.3 J	70	46	31	4.6	6.8	2.7	ND	ND
Xylenes (Total) (ug/L)	ND	12	15	ND	5.0	ND	ND	ND	75	46	14	1.1	10	4.1	ND	ND
Total BTEX (ug/L)	287	148	827	735	40.8	224	20	28.3	220	131	60	51.7	68.9	45.8	22	37
Sulfate (mg/L)	ND	ND	ND	ND	ND	ND**	ND	ND	9.78	1600	1.09	ND	ND	ND	ND	ND
Nitrate (mg/L)	ND	ND	ND	ND	ND	ND**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

**Table 5-2**  
**OU2 Round 8 and Historical**  
**Groundwater Analytical Results**  
**Wright-Patterson AFB, Ohio**  
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Well Number:	NEA-MW20-2S							NEA-MW21-3S								
Sample Round:	5	5	6	7	7	8	8		4	4	5	6	6	7	7	8
Date Sampled:	10/11/99	DUP	4/20/00	10/17/00	DUP	4/19/01	DUP	12/16/92	4/13/99	DUP	10/11/99	4/24/00	DUP	10/19/00	DUP	4/18/01
PARAMETERS:																
Ethane (ppm)	0.001	0.002	ND <sup>A</sup>	ND	ND	ND	ND	NA	0.003	0.002	0.002	0.005	0.005	0.00067	0.00058	0.00092
Ethene (ppm)	ND	ND	ND <sup>A</sup>	ND	ND	ND	ND	NA	ND	ND	ND	ND	ND	ND	ND	ND
Methane (ppm)	21.7	21.8	30.3 <sup>A</sup>	6.8 DB	6.2 DB	6.8 DB	5.6 DB	NA	13	13.9	14.6	25.5	23.5	5.8 DB	4.7 DB	6.4 DB
Benzene (ug/L)	56	54	76	46	46	35	38	77	240	200	230	300	290	290	290	49
Toluene (ug/L)	5.9	6.5	2.3*	ND	ND	ND	ND	54	ND	ND	10	ND	ND	ND	ND	ND
Ethylbenzene (ug/L)	3.4	3.6	ND	ND	ND	ND	ND	82	110	92	110	110	120	260	250	32
Xylenes (Total) (ug/L)	ND	ND	3.2*	ND	ND	ND	ND	150 J	140	130	70	120	110	320	330	28
Total BTEX (ug/L)	65.3	64.1	81.5	46	46	35	38	363	490	422	420	530	520	870	870	109
Sulfate (mg/L)	ND	ND	ND	2.4	2.0	ND	ND	1.05 J	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (mg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

**Table 5-2**  
**OU2 Round 8 and Historical**  
**Groundwater Analytical Results**  
**Wright-Patterson AFB, Ohio**  
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Well Number:	NEA-MW25-1D				NEA-MW25-2I				NEA-MW25-3S					NEA-MW26-3S		
Sample Round:				8				8				Baseline	6			
Date Sampled:	12/7/92	5/6/93	9/13/93	4/16/01	12/7/92	5/6/93	9/13/93	4/16/01	12/7/92	5/6/93	9/13/93	5/23/97	4/25/00	10/11/92	10/26/92	12/6/92
<b>PARAMETERS:</b>																
Ethane (ppm)	NA	NA	NA	ND	NA	NA	NA	0.00048 J	NA	NA	NA	0.001U	ND	NA	NA	NA
Ethene (ppm)	NA	NA	NA	ND	NA	NA	NA	ND	NA	NA	NA	0.001U	ND	NA	NA	NA
Methane (ppm)	NA	NA	NA	0.00047 JB	NA	NA	NA	8.9 DB	NA	NA	NA	12.3	0.006	NA	NA	NA
Benzene (ug/L)	ND	ND	ND	ND	17	2.0	0.7 J	ND	ND	0.7	ND	ND	ND	ND	ND	ND
Toluene (ug/L)	ND	ND	ND	ND	ND	ND	0.6 J	ND	ND	ND	ND	ND	ND	320	55	ND
Ethylbenzene (ug/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12000	200	ND
Xylenes (Total) (ug/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5700	150	ND
Total BTEX (ug/L)	ND	ND	ND	ND	17	2.0	1.3	ND	ND	0.7	ND	ND	ND	18020	405	ND
Sulfate (mg/L)	83.5	77.8	80.8	74.2	ND	0.073 J	ND	ND	0.634	3.87	0.409	ND	2.7	ND	ND	61.3
Nitrate (mg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

**Table 5-2**  
**OU2 Round 8 and Historical**  
**Groundwater Analytical Results**  
**Wright-Patterson AFB, Ohio**  
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Well Number:	NEA-MW26-3S						NEA-MW28-5S						NEA-MW28-4I			
Sample Round:			Baseline	6	7	8				7 <sup>B</sup>	7 <sup>B</sup>	8				Baseline
Date Sampled:	4/24/93	5/14/93	5/14/97	4/24/00	10/17/00	4/17/01	12/8/92	4/21/93	9/10/93	12/8/00	DUP	4/17/01	12/8/92	4/21/93	9/9/93	5/14/97
<b>PARAMETERS:</b>																
Ethane (ppm)	NA	NA	ND	ND	ND	ND	NA	NA	NA	0.00029 J	0.00029 J	0.00027 J	NA	NA	NA	ND
Ethene (ppm)	NA	NA	ND	ND	ND	ND	NA	NA	NA	ND	ND	ND	NA	NA	NA	ND
Methane (ppm)	NA	NA	0.109	0.002	0.026 B	0.038 B	NA	NA	NA	5.4 DB	5.5 DB	4.0 D	NA	NA	NA	7.27
Benzene (ug/L)	ND	ND	ND	ND	ND	ND	120	500	250	0.46 J	0.28 J	ND	44	23	1.0 J	ND
Toluene (ug/L)	ND	ND	ND	ND	0.22 J	ND	ND	ND	ND	ND	ND	ND	ND	0.8 J	ND	ND
Ethylbenzene (ug/L)	ND	ND	ND	ND	ND	ND	ND	ND	1.0	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total) (ug/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total BTEX (ug/L)	ND	ND	ND	ND	0.22	ND	120	500	251	0.46	0.28	ND	44	23.8	1.0	ND
Sulfate (mg/L)	101	37	ND	102**	54.5	57.5	1.06 J	1.77 J	0.675 J	ND	ND	1.7	0.86 J	0.636 J	1.37 J	ND
Nitrate (mg/L)	ND	ND	ND	ND**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0674 J	ND

**Table 5-2**  
**OU2 Round 8 and Historical**  
**Groundwater Analytical Results**  
**Wright-Patterson AFB, Ohio**  
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Well Number:	NEA-MW28-4I								OW-1							
Sample Round:	1	2	3	4	5	6	6	7	Baseline	1	2	3	4	5	6	7
Date Sampled:	10/20/97	4/28/98	10/15/98	4/13/99	10/11/99	4/24/00	DUP	10/17/00	5/14/97	10/20/97	4/28/98	10/15/98	4/13/99	10/13/99	4/24/00	10/17/00
<b>PARAMETERS:</b>																
Ethane (ppm)	ND	ND	ND	ND	ND	0.001	0.001	ND	ND	ND	ND	0.002	ND	0.001	0.002	0.00035 J
Ethene (ppm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane (ppm)	4.41	13.6	1.91	6.9	4.4	11.1	13.2	1.9 DB	11.7	13.2	11.2	12.9	14	8.29	12.8	4.2 DB
Benzene (ug/L)	ND	ND	ND	ND	ND	ND	ND	ND	430	400	460	160	150	13	13*	ND
Toluene (ug/L)	ND	ND	ND	ND	ND	ND	ND	0.21 J	ND	8.5	28	7.1	19	12	3.5	ND
Ethylbenzene (ug/L)	ND	ND	ND	ND	ND	ND	ND	ND	1.3	1.8	ND	ND	11	6.8	ND	ND
Xylenes (Total) (ug/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.3	ND	ND	11	3.6	4.8	ND
Total BTEX (ug/L)	ND	ND	ND	ND	ND	ND	ND	0.21	431.3	418.6	488	167.1	191	35.4	21.3	ND
Sulfate (mg/L)	4.65	ND	2.0	3.6	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate (mg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

**Table 5-2**  
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Well Number:	OW-1		OW-2								OW-3					
Sample Round:	8	8	Baseline	3	3	4	5	6	7	8	Baseline	1	2	3	4	5
Date Sampled:	4/16/01	DUP	5/21/97	10/21/98	DUP	4/13/99	10/11/99	4/25/00	10/19/00	4/17/01	5/22/97	10/23/97	4/29/98	10/15/98	4/13/99	10/11/99
<b>PARAMETERS:</b>																
Ethane (ppm)	0.00049 J	0.00051	ND	0.001	0.002	0.019	0.002	0.003	0.0005	0.00048 J	ND	ND	ND	ND	0.008	0.001
Ethene (ppm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methane (ppm)	5.6 DB	5.6 DB	24.9	14.9	13.7	20.5	21.1	23	7.3 DB	6.9 DB	12.1	12.4	16.5	13.8	15.9	10.1
Benzene (ug/L)	0.84 J	0.85 J	ND	ND	ND	ND	2.4	ND	ND	ND	2.2	8.2	8.7	ND	10	7.0
Toluene (ug/L)	ND	ND	ND	ND	5.1	2.3	7.7	3.0*	ND	ND	ND	7.6	ND	ND	13	11
Ethylbenzene (ug/L)	ND	ND	ND	ND	ND	2.4	2.6	ND	ND	ND	ND	4.2	7.1	ND	6.2	5.9
Xylenes (Total) (ug/L)	ND	ND	ND	ND	ND	ND	1.5	3.5*	ND	ND	ND	7.2	2.6	ND	7.3	6.0
Total BTEX (ug/L)	0.84	0.85	ND	ND	5.1	4.7	14.2	6.5	ND	ND	2.2	27.2	18.4	ND	36.5	29.9
Sulfate (mg/L)	1.3	1.2	1.0	ND	ND	ND	ND	ND	ND	ND	ND	1.52	ND	ND	ND	ND
Nitrate (mg/L)	ND	ND	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

**Table 5-2**  
**OU2 Round 8 and Historical**  
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Well Number:	OW-3			OW-4									OW-6		P18-1	
Sample Round:	6	7	8	Baseline	1	2	3	4	5	6	7	8	Baseline	6		Baseline
Date Sampled:	4/25/00	10/19/00	4/17/01	5/27/97	10/22/97	4/29/98	10/15/98	4/14/99	10/11/99	4/25/00	10/19/00	4/17/01	5/27/97	4/19/00	8/12/91	5/16/97
<b>PARAMETERS:</b>																
Ethane (ppm)	0.003	0.00031 J	0.0007	ND	ND	ND	0.001	0.002	0.001	0.004	0.00029 J	0.00032 J	0.001U	ND	NA	ND
Ethene (ppm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.001U	ND	NA	ND
Methane (ppm)	21	4.5 DB	3.9 D	19.5	13.7	12.6	10.8	9.91	10.8	16.8	4.3 DB	3.4 D	0.291	ND	NA	11.5
Benzene (ug/L)	6.8*	ND	ND	ND	4.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	570	5.5
Toluene (ug/L)	2.6*	ND	ND	ND	ND	4.3	1.0	4.5	3.2	1.2*	ND	ND	ND	ND	NA	ND
Ethylbenzene (ug/L)	ND	ND	ND	ND	ND	3.1	1.2	2.2	2.3	ND	ND	ND	ND	ND	54	ND
Xylenes (Total) (ug/L)	5.7*	ND	ND	ND	3.3	1.5	ND	2.6	1.2	1.3*	ND	ND	ND	ND	280	ND
Total BTEX (ug/L)	15.1	ND	ND	ND	7.3	8.9	2.2	9.3	6.7	2.5	ND	ND	ND	ND	904	5.5
Sulfate (mg/L)	ND	ND	1.0	3.0	ND	ND	1.2	1.0	ND	7.0	1.5	2.0	23	30.8	0.24	10
Nitrate (mg/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.107	0.5

**Table 5-2**  
**OU2 Round 8 and Historical**  
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Well Number:	P18-1								P18-2						
Sample Round:	1	2	3	4	5	6	7	8		Baseline	1	2	3	4	5
Date Sampled:	10/20/97	4/29/98	10/16/98	4/13/99	10/11/99	4/24/00	10/19/00	4/17/01	8/12/91	5/16/97	10/20/97	4/29/98	10/16/98	4/13/99	10/11/99
<b>PARAMETERS:</b>															
Ethane (ppm)	DRY	ND	ND	0.009	DRY	ND	ND	ND	NA	ND	DRY	ND	ND	ND	DRY
Ethene (ppm)	DRY	ND	ND	ND	DRY	ND	ND	ND	NA	ND	DRY	ND	ND	ND	DRY
Methane (ppm)	DRY	7.27	4.36	17.3	DRY	7.29	6.0 DB	3.6 D	NA	16.9	DRY	8.24	16.2	8.96	DRY
Benzene (ug/L)	DRY	15	15	4.6	DRY	5.7*	ND	ND	1900	130	DRY	66	42	ND	DRY
Toluene (ug/L)	DRY	13	13	13	DRY	ND	ND	ND	NA	ND	DRY	8.5	ND	ND	DRY
Ethylbenzene (ug/L)	DRY	7.4	7.4	7.1	DRY	ND	ND	ND	450	43	DRY	29	ND	ND	DRY
Xylenes (Total) (ug/L)	DRY	11	ND	20	DRY	ND	ND	ND	490	ND	DRY	4.7	ND	ND	DRY
Total BTEX (ug/L)	DRY	46.4	35.4	44.7	DRY	5.7	ND	ND	2840	173	DRY	108.2	42	ND	DRY
Sulfate (mg/L)	DRY	ND	ND	ND	DRY	ND	ND	1.1	0.15	1.7	DRY	ND	ND	ND	DRY
Nitrate (mg/L)	DRY	ND	ND	ND	DRY	ND	ND	ND	0.013	ND	DRY	1.0	ND	ND	DRY

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Well Number:	P18-2		
Sample Round:	6	7	8
Date Sampled:	4/24/00	10/19/00	4/17/01
<b>PARAMETERS:</b>			
Ethane (ppm)	ND	ND	ND
Ethene (ppm)	ND	ND	ND
Methane (ppm)	2.08	5.0 DB	1.9 D
Benzene (ug/L)	8.2*	ND	1.0 J
Toluene (ug/L)	ND	ND	ND
Ethylbenzene (ug/L)	50	ND	ND
Xylenes (Total) (ug/L)	ND	ND	ND
Total BTEX (ug/L)	58.2	ND	1.0
Sulfate (mg/L)	32.6**	ND	191
Nitrate (mg/L)	ND**	ND	1.1

ug/L - Micorgrams per Liter (ppb)

mg/L - Milligrams per Liter (ppm)

NA - Not Analyzed

ND - Not Detected

U - Undetected at the detection limit

D - Result obtained from the analysis of a dilution

J - Estimated Result. Result between reporting limit and detection limit

B - Method blank contamination.

<sup>A</sup> - Well NEA-MW20-2S was sampled for ethane, ethene and methane on 4/25/00.

<sup>B</sup> - Well monument was incorrectly tagged in the field (MW28-4I). Actual well (MW28-5S) was sampled in December 2000 for Round 7.

\* - Quantitation suspect due to hydrocarbon interference.

\*\* - Reporting limit was raised due to matrix interference.

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Sample Location	Date Sampled	Sample Round	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Total BTEX (µg/L)	Total Volatile Hydrocarbons (µg/L)	Methane ( % )	Oxygen ( % )	Carbon Dioxide ( % )
OU2-SV01	5/7/97	Baseline	ND	ND	ND	ND	ND	172	ND	25.1	ND
	10/27/97	1	ND	ND	ND	ND	ND	ND	ND	16.5	1.03
	4/22/98	2	ND	ND	ND	ND	ND	36.6	ND	15.3	0.56
	10/20/98	3 <sup>(1)</sup>	ND	ND	ND	ND	ND	ND	ND	23	0.8
	4/8/99	4	ND	ND	ND	ND	ND	ND	ND	16.95	0.5
	10/6/99	5	ND	ND	2	ND	2	79.8	ND	18.1	1.2
	4/20/00	6	ND	ND	ND	ND	ND	145	ND	15	0.65
	11/3/00	7	ND	ND	ND	ND	ND	ND	ND	18.1	1.3
	Duplicate	7	ND	ND	ND	ND	ND	ND	ND	18	1.3
	5/1/01	8 <sup>(4)</sup>	0.022 J	0.085	0.083 J	0.21	0.40	32 B	0.00014 J	20	1.1
OU2-SV02	5/7/97	Baseline	ND	ND	ND	ND	ND	ND	2.1	24.1	ND
	10/27/97	1	ND	ND	ND	ND	ND	ND	ND	16.4	1.36
	4/22/98	2	ND	ND	ND	ND	ND	ND	ND	12.9	1.38
	10/20/98	3 <sup>(1)</sup>	ND	ND	ND	ND	ND	ND	ND	2.6	1.8
	4/8/99	4	1.35	ND	ND	ND	1.35	ND	ND	3.37	1.52
	10/6/99	5	1.6	ND	4	ND	5.58	59	ND	18	0.59
	4/20/00	6	4.39	ND	9.02	6.87	20.3	487	ND	13	0.97
	11/3/00	7	ND	ND	ND	ND	ND	ND	ND	18.3	1.7
	5/2/01	8 <sup>(4)</sup>	0.034 J	0.2	0.32	0.89	1.444	99	0.00019 J	17	3.1
OU2-SV03	5/7/97	Baseline	ND	ND	ND	3.58	3.58	630	11.1	15.8	ND
	10/27/97	1	53.5	32.5	11.3	21.7	119	1673	1.22	2.77	8.6
	4/22/98	2	212	112	37.7	34	395.7	4540	1.41	3.18	6.81
	10/20/98	3 <sup>(1)</sup>	ND	ND	11	8.6	19.6	2760	5.1	2.6	10
	4/8/99	4	9.57 <sup>(2)</sup>	2.79	4.43	ND	16.79	4351	1.1	4.85	5
	10/6/99	5	ND	14.5	47.7	120	182.2	8300	2.7	6.4	8.24
	4/20/00	6	ND	15.1	71.9	69	156	11040 D	2.7	3.5	11
	Duplicate	6	ND	14.9	69.2	71	155	9960 D	2.7	4.2	10
	11/3/00	7	610	433	47	95.7	1185.7	50880	5.2	4.4	9.3
	Duplicate	7	575	361	19.6	36.9	992.5	49380	5.2	4.7	9.2
	5/1/01	8 <sup>(4)</sup>	7.5 D	24 D	14 D	37 JD	82.5 D	9300 D	0.45	2.6	14
	Duplicate	8 <sup>(4)</sup>	11 D	27 D	17 D	45.8 D	100.8 D	9900 D	0.41	2.5	14

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Sample Location	Date Sampled	Sample Round	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Total BTEX (µg/L)	Total Volatile Hydrocarbons (µg/L)	Methane ( % )	Oxygen ( % )	Carbon Dioxide ( % )
OU2-SV04	5/7/97	Baseline	ND	ND	ND	5.51	5.51	453	ND	22.6	ND
	10/27/97	1	230	160	60.6	67.7	518.3	6851	ND	10.2	3.47
	4/22/98	2	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/20/98	3 <sup>(1)</sup>	ND	ND	8.6	4.9	13.5	1600	0.055	16	4.3
	4/8/99	4	NS	NS	NS	NS	NS	NS	NS	NS	NS
	10/6/99	5	ND	40.6	ND	44.6	85.2	2780	ND	12.6	4.1
	4/20/00	6	NS	NS	NS	NS	NS	NS	NS	NS	NS
	11/3/00	7	49.6	78.7	4.4	13.7	146.4	2990	0.5	10.2	5.3
	5/1/01	8 <sup>(4)</sup>	ND	0.12	0.052 J	0.093	0.265	30 B	0.0094	22	0.43
OU2-SV05	5/7/97	Baseline	ND	ND	ND	8.49	8.49	4420	5.08	10.7	12.6
	10/27/97	1	890	146	49.7	29.3	1115	17244	19.7	3.02	4.66
	4/22/98	2	2490	275	90.7	66.5	2922.2	29200	19.4	2.64	3.01
	10/20/98	3 <sup>(1)</sup>	ND	ND	6	ND	6	5050	9.8	2.8	7.5
	Duplicate	3 <sup>(1)</sup>	ND	ND	24	8.1	32.1	6740	9.1	10	5
	4/8/99	4	154	8.17	19.3	ND	181.47	20986	8.35	4	3.45
	10/6/99	5	ND	ND	249	105	354	34900	5.1	7.55	4.65
	4/20/00	6	ND	23.7	119	113	255.7	24600 D	14	3.6	4.2
	11/3/00**	7	-	-	-	-	-	-	-	-	-
OU2-SV06	5/7/97	Baseline	ND	ND	ND	93.9	93.9	9480	4.66	3.8	38.9
	10/27/97	1	528	216	60.4	39.8	844.2	19209	34.6	6.47	0.76
	4/22/98	2	1250	528	157	175	2110	33200	26.4	2.42	0.75
	10/20/98	3 <sup>(1)</sup>	ND	ND	27	ND	27	11100	38	2.7	2
	4/8/99	4	374 <sup>(3)</sup>	59.5	39.6	14.9	488	35119	7.7	2.9	0.57
	10/6/99	5	2060	2410	849	221	5540	66600	20	3.1	1.5
	4/20/00	6	ND	66.1	106	89.4	262	24050 D	25 D	3.5	1
	11/3/00	7	1630	708	26.4	48.1	2412.5	1233440	27.2 D	4.7	1
	5/1/01	8 <sup>(4)</sup>	91 D	94 D	40 D	92 D	317 D	44000 D	33	1.8	1.1

**Table 5-3**  
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Sample Location	Date Sampled	Sample Round	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Total BTEX (µg/L)	Total Volatile Hydrocarbons (µg/L)	Methane ( % )	Oxygen ( % )	Carbon Dioxide ( % )
OU2-SV07	5/7/97	Baseline	ND	ND	ND	ND	ND	119	2.06	22.2	ND
	10/27/97	1	44.3	70.9	28.2	15.8	159.2	3426	12.3	2.33	4.61
	4/22/98	2	112	13.7	66.9	49.8	242.4	5090	5.02	2.66	3.47
	10/20/98	3 <sup>(1)</sup>	ND	ND	12	ND	12	2830	8.9	2.7	6
	4/8/99	4	ND	17.2	11.6	28.5	57.3	4395	5.31	3.45	4.28
	10/6/99	5	117	36.6	64.4	68.8	286.5	3710	4.5	8.2	3.9
	Duplicate	5	VOCs not analyzed because the sample broke during analysis.						5.2	6.42	5
	4/20/00	6	98.2	25.5	52.9	33.2	210	2786 D	3.3	4.6	5.8
	Duplicate	6	91.3	24.8	56.9	39.3	212	3920 D	3.5	3.4	6.2
	11/3/00	7	7.2	111	7.9	28.4	154.5	3530	2.6	4.5	6.4
	5/2/01	8 <sup>(4)</sup>	7.3 D	14 D	12 D	21 D	54.3 D	4500 D	0.77	1.8	9.3
OU2-SV08	5/8/97	Baseline	ND	ND	ND	ND	ND	22.2	ND	25.1	ND
	10/27/97	1	39.9	50.7	19.6	14.1	124.3	6709	18.8	7.6	1.04
	4/22/98	2	5.38	7.91	2.78	3.28	19.35	330	2.19	9.32	ND
	10/20/98	3 <sup>(1)</sup>	ND	ND	ND	ND	ND	2090	4.6	21	0.77
	4/8/99	4	34.3	13.2	14.8	9.32	71.62	10662	6.2	8.65	1.34
	10/6/99	5	103	32.4	101	192	428.4	8790	6	11.2	1.7
	Duplicate	5	91.5	30.8	91.4	70.8	284.5	7950	7.8	9.7	1.9
	4/20/00	6	59.7	9.86	32.8	28.3	131	4880 D	5.9	8.2	2
	11/3/00	7	14.3	17	18.4	56.1	105.8	23510	2.6	17.6	0.5
	5/1/01	8 <sup>(4)</sup>	18 D	24 D	12 D	26.2 D	80.2 D	7800 D	4.7	12	1.7
OU2-SV09	5/7/97	Baseline	ND	ND	ND	ND	ND	ND	ND	26.5	ND
	10/27/97	1	ND	ND	ND	ND	ND	ND	ND	16.2	1.51
	4/22/98	2	ND	ND	ND	ND	ND	ND	ND	15.1	1.05
	10/20/98	3 <sup>(1)</sup>	ND	ND	ND	ND	ND	ND	ND	21	2
	4/8/99	4	ND	ND	ND	ND	ND	ND	ND	17.35	0.74
	10/6/99	5	ND	ND	ND	ND	ND	ND	ND	18	1.7
	4/20/00	6	ND	ND	ND	ND	ND	ND	ND	15	1
	11/3/00	7	ND	ND	ND	4.1	4.1	ND	ND	18.3	1.4
	5/2/01	8 <sup>(4)</sup>	0.058 J	0.4	0.53	1.45	2.438	154	ND	20	1.1

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Sample Location	Date Sampled	Sample Round	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Total BTEX (µg/L)	Total Volatile Hydrocarbons (µg/L)	Methane ( % )	Oxygen ( % )	Carbon Dioxide ( % )
OU2-SV10	5/7/97	Baseline	ND	424	9.2	135	568.2	12500	8.5	5.78	24.2
	10/27/97	1	1192	356	111	167	1826	26575	16.4	2.87	8.13
	4/22/98	2	1340	644	236	234	2454	31600	7.36	3.05	4.1
	10/20/98	3 <sup>(1)</sup>	ND	ND	50	20	70	9600	6.9	3.3	14
	Duplicate	3 <sup>(1)</sup>	ND	ND	68	17	85	10600	6.9	4	15
	4/8/99	4	396	ND	ND	ND	396	22374	5.65	4	4.65
	10/6/99	5	196	23.2	116	161	496	12000	3.3	2.9	11
	4/20/00	6	375 D	23.6 D	145	122	666	16620 D	1.5	4	8.5
	11/3/00	7	263	308	25	45.2	641.2	29650	3.1	3.5	12.1
	5/2/01	8 <sup>(4)</sup>	19 D	42 D	35 D	81 D	177 D	14400 D	3.3	1.7	8.9
OU2-SV11	5/8/97	Baseline	ND	ND	ND	ND	ND	ND	ND	25.3	ND
	10/27/97	1	ND	ND	ND	ND	ND	ND	ND	4.55	4.81
	4/22/98	2	ND	ND	ND	ND	ND	ND	ND	5.29	4.17
	10/20/98	3 <sup>(1)</sup>	ND	ND	ND	ND	ND	ND	ND	5.2	10
	4/8/99	4	ND	ND	ND	ND	ND	ND	ND	3.89	4.44
	10/6/99	5	ND	ND	ND	ND	ND	77.8	ND	3.7	7.3
	4/20/00	6	ND	ND	ND	ND	ND	ND	ND	6.1	6.6
	11/3/00	7	ND	ND	ND	ND	ND	ND	ND	7.8	7.4
	5/1/01	8 <sup>(4)</sup>	ND	ND	ND	ND	ND	8.5 JB	ND	7.1	7.0
OU2-SV12	5/8/97	Baseline	ND	ND	ND	ND	ND	ND	ND	26.2	ND
	10/27/97	1	ND	ND	ND	ND	ND	ND	ND	10.2	6.45
	4/22/98	2	ND	ND	ND	ND	ND	ND	ND	9.01	3.53
	10/20/98	3 <sup>(1)</sup>	ND	ND	ND	ND	ND	ND	ND	14	7.1
	4/8/99	4	ND	ND	ND	ND	ND	ND	ND	9.3	3.64
	10/6/99	5	ND	ND	ND	ND	ND	ND	ND	13.4	5.6
	4/20/00	6	ND	ND	ND	ND	ND	98.4	ND	9.2	3.4
	11/3/00	7	ND	ND	ND	ND	ND	ND	ND	10.1	6.7
	5/1/01	8 <sup>(4)</sup>	ND	0.026 J	ND	ND	0.026	10.3 JB	ND	14	4.5

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Sample Location	Date Sampled	Sample Round	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Total BTEX (µg/L)	Total Volatile Hydrocarbons (µg/L)	Methane ( % )	Oxygen ( % )	Carbon Dioxide ( % )
OU2-SV13	5/7/97	Baseline	ND	ND	ND	ND	ND	1090	ND	24.7	ND
	10/27/97	1	ND	ND	ND	ND	ND	ND	ND	15.7	1.8
	4/22/98	2	ND	ND	ND	ND	ND	ND	ND	16.2	0.6
	10/20/98	3 <sup>(1)</sup>	ND	ND	ND	ND	ND	ND	ND	21	2.6
	4/8/99	4	ND	ND	ND	ND	ND	ND	ND	14.7	0.79
	10/6/99	5	ND	ND	ND	ND	ND	ND	ND	16.5	2.4
	4/20/00	6	ND	ND	ND	ND	ND	162	ND	16	0.71
	11/3/00	7	ND	ND	ND	ND	ND	ND	ND	17.9	1.7
	5/1/01	8 <sup>(4)</sup>	ND	ND	ND	ND	ND	8.8 JB	ND	21	0.9
OU2-SV14	5/7/97	Baseline	ND	ND	9.26	11.3	20.56	8700	10.3	8.78	8.28
	10/27/97	1	1975	414	101	110	2600	38558	14.4	3.42	7.13
	4/22/98	2	3480	910	303	456	5149	53100	7.33	1.75	4.88
	10/20/98	3 <sup>(1)</sup>	ND	ND	30	ND	30	18500	5.8	4.7	12
	4/8/99	4	182	ND	ND	ND	182	50812	4.2	0.53	4.44
	10/6/99	5	673	80.3	454	358	1563	36800	3.6	2.8	9.9
	4/20/00	6	234 D	35.3	214	130	613	15850 D	1.8	4.8	7.9
	11/3/00	7	340	1680	120	205.4	2345.4	30600	2.5	6.8	7.6
	5/2/01	8 <sup>(4)</sup>	79 D	200 D	100 D	215 D	594 D	62000 D	2.1	1.7	9.9
OU2-SV15	5/7/97	Baseline	ND	ND	ND	ND	ND	ND	ND	25.6	ND
	10/27/97	1	ND	ND	ND	ND	ND	ND	ND	15.2	1.62
	4/22/98	2	ND	ND	ND	ND	ND	ND	ND	15.6	0.94
	10/20/98	3 <sup>(1)</sup>	ND	ND	ND	ND	ND	ND	ND	21	1.8
	4/8/99	4	ND	ND	ND	ND	ND	ND	ND	17.3	0.94
	10/6/99	5	ND	ND	ND	ND	ND	ND	ND	17	2.1
	4/20/00	6	ND	ND	ND	ND	ND	ND	ND	16	0.76
	11/3/00	7	ND	ND	ND	ND	ND	ND	ND	19.1	1.2
	5/2/01	8 <sup>(4)</sup>	0.15 JD	1.1 D	1.3 D	3.73 D	6.28 D	420 D	0.00017 J	21	0.97

<sup>(1)</sup> - BTEX analysis was run outside of the 14 day holding time for EPA Method 8021.

<sup>(2)</sup> - Pore volume (PV) purged prior to sampling = 420 cc, provided the highest benzene concentration.

<sup>(3)</sup> - Pore volume (PV) purged prior to sampling = 3240 cc, provided the highest benzene concentration.

<sup>(4)</sup> - Analytical method was changed to EPA Method TO-3 for Round 8.

ND - Concentration is below detection limits.

NS - Not sampled. Groundwater in vapor monitoring point.

µg/L - micrograms per liter (ppb)

D - Diluted sample

J - Estimated result. Result less than reporting limit.

B - Method blank contamination

\*\*OU2-SV-05 was destroyed during construction.

**Table 5-4**  
**OU2 Baseline and April 2001 Groundwater Elevations**  
**Wright-Patterson AFB, Ohio**

Well Name	Old <sup>(a)</sup> Monitoring Point Elev. (ft, MSL)	New <sup>(b)</sup> Monitoring Point Elev. (ft, MSL)	May-97 <sup>(c)</sup> Depth to Water (ft, TOC)	May-97 Groundwater Elevation (ft, MSL)	12-Apr-01 Depth to Water (ft, TOC)	12-Apr-01 Groundwater Elevation (ft, MSL)
04-016-M	820.90	818.33	10.82	810.08	8.74	809.59
04-517-M	821.96	NC	8.00	813.96	7.61	814.35
04-518-M	820.41	NC	11.08	809.33	12.20	808.21
OW-1	817.20	NC	8.70	808.50	8.32	808.88
OW-2	819.77	817.64	12.71	807.06	11.14	806.50
OW-3	820.95	819.04	14.50	806.45	13.17	805.87
OW-4	817.20	NC	10.87	806.33	11.28	805.92
OW-6	816.40	NC	10.91	805.49	11.42	804.98
P11-1	819.98	NC	8.92	811.06	BTP	--
P16-1	818.92	816.50	7.00	811.92	4.90	811.60
P18-1	816.72	NC	10.65	806.07	BTP	--
P18-2	820.04	817.91	13.58	806.46	BTP	--
NEA-MW20-2S	821.49	NC	9.75	811.74	10.01	811.48
NEA-MW21-3S	820.85	NC	12.15	808.70	11.97 / 12.97 <sup>d</sup>	808.48 <sup>e</sup>
NEA-MW22-3S	819.48	817.87	9.00	810.48	7.54	810.33
NEA-MW23-2S	818.06	816.50	8.91	809.15	7.54	808.96
NEA-MW24-2S	818.68	NC	10.08	808.60	11.11	807.57
NEA-MW25-3S	817.08	815.20	12.50	804.58	11.36	803.84
NEA-MW26-3S	819.23	NC	12.75	806.48	13.59	805.64
NEA-MW28-5S	820.10	NC	12.25	807.85	11.95	808.15
NEA-MW29-2S	817.92	816.23	12.62	805.30	11.45	804.78
NEA-MW31-3S	819.56	NC	14.28	805.28	NT	--
NEA-MW34-2S	815.28	814.02	10.61	804.67	9.94	--
NEA-PZ32	821.60	NC	NM	---	9.66	--

<sup>(a)</sup> - Monitoring point elevations prior to October 1999

<sup>(b)</sup> - Monitoring point elevations after flush-mounting in October 1999

<sup>(c)</sup> - Reference: OU2 Baseline Sampling Results Report (IT, 1997)

<sup>(d)</sup> - Measured depth to product and depth to water, respectively, shown for NEA-MW21-3S

<sup>(e)</sup> - Represents Corrected Groundwater Elevation (CGWElev) based on the equation:

$$\text{CGWElev} = \text{Measured GWElev} + 0.6(\text{Measured Free Product Thickness})$$

$$\text{Measured GWElev} = 820.85 - 12.97 = 807.88 \quad \text{Measured Free Product Thickness} = 12.97 - 11.97 = 1.0$$

$$\text{CGWElev} = 807.88 + 0.6(1.0) = 808.48$$

ft - Feet

MSL - Mean Sea Level

TOC - Top of Casing

BTP - Below top of pump

NM - Not Measured

NC - No change in TOC elevation.

**Table 5-5**  
**OU2 Benzene Concentrations Comparison**  
**Wright-Patterson AFB, Ohio**

Well Number	Sample Date of Highest Concentration	Highest Benzene Concentration (µg/L)	April-01 Benzene Concentrations (µg/L)
04-016-M	8/12/91	440	3.8
04-518-M	9/6/88	2,600	23
NEA-MW20-2S	4/20/00	76	38
NEA-MW21-3S	4/24/00	300	49
NEA-MW26-3S	4/24/00	ND	ND
NEA-MW28-5S	4/21/93	500	ND
P18-1	8/12/91	570	ND
P18-2	8/12/91	1,900	1.0 J
OW-1	4/28/98	460	0.85 J
OW-2	10/11/99	2.4	ND
OW-3	4/13/99	10	ND
OW-4	10/22/97	4	ND

ND - Not Detected

NA - Not Applicable

J - Estimated result. Result is between the reporting limit and the detection limit.

**Table 5-6**  
**OU2 Free Product Recovery Volume,**  
**Well: NEA-MW21-3S**  
**Wright-Patterson AFB, Ohio**

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<b>Date Removed</b>	<b>Removal Method</b>	<b>Product Removed (gal)</b>
6 November, 2000	Petro-trap™	0.06
15 November, 2000	Petro-trap™	No fuel recovered <sup>1</sup>
30 November, 2000	Petro-trap™	0.06
12 December, 2000	Petro-trap™	0.19
27 December, 2000	Petro-trap™	0.13
4 January, 2001	Petro-trap™	0.06
17 January, 2001	Petro-trap™	0.08
29 January, 2001	Petro-trap™	0.03
1 February, 2001	Petro-trap™	0.10
28 February, 2001	Petro-trap™	0.10
6 March, 2001	Petro-trap™	0.10
22 March, 2001	Petro-trap™	0.48
29 March, 2001	Petro-trap™	0.30
24 April, 2001	Petro-trap™	0.41
<b>Total Volume</b>		<b>2.10</b>

<sup>1</sup> - Hose kinked, no fuel recovered.

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Well Number	Date Sampled	Static Water Level (ft, TOC)	Temp. (C°)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mv)	DO (mg/L)
<b>Basewide Annual VOCs</b>								
BS6 P-1	11/4/98	6.03	15.3	6.59	0.611	10	79.1	0.91
	4/19/99	1.32	11.8	8.60	0.629	19	-122.1	5.44
	4/26/00	2.57	13.9	7.19	0.678	1	3.0	0.93
	4/20/01	3.00	9.8	7.46	0.824	0	26.6	1.46
BS6 P-2	11/5/98	5.36	14.5	6.55	1.350	213	-102.5	1.98
	4/19/99	4.05	11.1	7.06	0.800	174	-100.6	3.63
	4/26/00	4.00	13.7	7.13	1.460	400	-114.3	6.67
	4/20/01	4.18	10.3	7.27	1.990	0	-116.8	6.61
SP11-MW01	4/24/98	10.57	13.3	6.97	1.030	7	-66.8	0.32
	4/20/99	10.05	12.9	7.09	0.724	NA	-78.4	0.14
	4/26/00	9.29	13.1	7.10	1.040	0	-80.8	1.68
	4/19/01	8.97	13.4	7.25	1.520	4	-108.6	0.52
SP11-MW02	4/22/98	BTP	12.0	7.01	1.580	327	40.0	8.09
	4/21/99	6.00	16.8	7.11	1.410	20	-66.7	0.98
	4/28/00	6.20	11.5	7.14	1.590	20	58.0	2.81
	4/20/01	6.28	10.7	6.96	2.420	1	-110.3	2.19
SP11-MW03	4/21/98	6.88	10.7	7.11	1.030	1	-127.4	0.20
	4/20/99	7.90	10.3	7.18	0.417	NA	-121.7	0.21
	4/19/00	7.28	11.6	6.43	1.870	offscale	-78.9	11.87
	4/16/01	6.91	9.8	6.51	1.480	441	-53.0	3.64
SP11-MW07	4/23/01	9.08	13.2	6.90	0.560	2	-152.1	13.22
SP11-MW08	4/19/00**	6.56	13.2	7.28	1.260	offscale	-184.0	3.35
	4/16/01	5.02	11.9	6.72	0.960	64	-143.6	1.06
SP11-MW09	4/20/01	5.50	10.3	7.02	2.290	907	-164.7	10.85

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Well Number	Date Sampled	Static Water Level (ft, TOC)	Temp. (C°)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mv)	DO (mg/L)
OU8-MW-02S	4/20/98	21.71	17.5	6.83	1.230	0	-65.5	0.63
	4/22/99	22.75	17.6	7.10	1.100	NA	151.0	1.10
	4/25/00	Not sampled, wellhead damaged.						
	4/11/01	21.08	17.7	6.85	1.340	7	110.8	0.26
P6-1	4/23/98	20.09	16.9	6.75	1.300	0	-70.1	0.30
	4/20/99	20.60	15.1	8.06	1.910	1	-257.3	1.36
	4/26/00	22.04	15.5	6.94	1.540	0	-46.0	1.36
	4/11/01	20.45	16.7	6.61	1.060	0	-106.1	0.95
P6-2	4/23/98	19.25	15.5	6.93	1.650	0	-116.9	0.21
	4/20/99	19.68	15.4	8.39	1.480	65	-286.9	0.15
	4/26/00	21.27	16.2	7.18	1.780	13	-10.0	1.68
	4/11/01	19.60	16.6	6.89	1.550	0	-128.0	0.41
EFD02-MW03	4/26/00	6.12	13.6	7.12	1.290	0	10.1	1.49
	4/19/01	6.01	13.3	7.31	1.150	2	43.6	1.66
EFD04-MW06	4/22/98	BTP	14.0	7.39	1.040	156	59.0	6.53
	4/20/99	18.49	18.3	7.35	0.631	NA	15.7	0.60
	4/27/00	17.93	14.4	7.19	1.100	55	-128.3	0.26
	4/12/01	18.22	14.9	6.74	1.060	17	259.0	0.51
EFD09-575	4/20/98	3.71	11.9	7.17	1.060	0	-29.4	16.60
	4/20/99	4.05	11.0	7.01	0.716	NA	-41.5	0.08
	4/27/00	5.67	11.2	6.95	1.360	12	192.0	1.64
	4/12/01	2.87	11.8	6.56	1.850	0	246.4	13.59
<b>Basewide Semi-Annual VOCs</b>								
BS5 P-1	11/4/98	30.40	13.0	6.66	0.736	208	169.9	6.62
	4/19/99	30.18	13.8	8.45	0.930	43	-114.2	6.99
	10/8/99	DRY						
	4/26/00	BTP	14.4	7.36	0.627	19	97.3	9.76
	10/20/00	DRY						
	4/19/01	31.95	13.3	7.06	0.569	0	ERR	9.19

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Well Number	Date Sampled	Static Water Level (ft, TOC)	Temp. (C°)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mv)	DO (mg/L)
BS5 P-2	11/4/98	31.02	12.3	6.53	0.634	Offscale	364.9	6.87
	4/19/99	30.70	13.9	7.29	0.468	326	228.2	8.28
	10/8/99	BTP	14.7	7.16	0.936	38	4.1	6.63
	4/26/00	BTP	11.9	7.09	0.683	17	93.0	6.84
	10/20/00	BTP	12.7	6.72	0.431	9	221.2	7.20
	4/19/01	33.08	13.5	7.33	0.576	0	156.7	7.99
BS5 P-3	11/4/98	35.56	14.6	6.60	0.742	473	163.0	5.20
	4/19/99	35.26	15.8	8.61	0.910	51	-125.9	5.37
	10/8/99	DRY						
	4/26/00	BTP	12.4	7.27	0.980	0	127.0	7.21
	10/20/00	BTP	14.2	6.99	0.516	64	200.9	7.42
	4/19/01	37.08	13.0	7.43	1.700	2	30.4	5.96
BS5 P-4	11/4/98	35.76	13.4	6.63	0.735	146	152.7	5.83
	4/19/99	35.40	13.8	7.26	0.600	44	NA	6.52
	10/8/99	42.72	14.1	6.59	1.080	19	149.4	6.47
	4/26/00	40.56	11.9	7.28	1.250	0	-14.6	7.30
	10/20/00	40.21	16.0	6.84	0.552	6	158.4	7.42
	4/20/01	37.15	11.3	7.44	1.690	0	158.1	7.04
NEA-MW27-3I	4/27/98	18.45	13.8	7.10	0.760	19	-63.1	5.16
	10/28/98	19.09	14.5	6.88	0.825	20	83.0	5.60
	4/21/99	18.04	14.0	8.63	0.879	4	-355.9	5.13
	10/13/99	20.81	14.3	6.56	0.783	0	-1.8	4.32
	4/19/00	18.57	14.0	7.02	0.857	14	-32.0	11.40
	10/18/00	19.65	14.2	7.28	0.859	3	164.5	4.90
NEA-MW34-2S	4/16/01	19.17	12.7	6.87	0.676	1	234.3	12.04
	10/23/98	11.32	15.2	6.75	0.627	7	146.5	6.27
	4/19/99	10.44	11.1	7.20	0.463	0	NA	5.78
	10/7/99	12.71	15.2	6.78	0.628	5	172.5	5.04
	4/19/00	8.41	11.7	7.38	1.020	19	183.5	7.34
	10/19/00	10.46	15.2	7.37	0.805	5	130.0	5.38
	4/17/01	9.65	10.8	6.95	0.496	0	151.9	16.33

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FTA2:MW02C	4/23/98	13.61	13.7	7.11	0.824	0	-120.1	1.03
	10/28/98	14.52	18.1	6.44	0.695	0	-179.6	0.57
	4/22/99	12.70	13.2	8.12	0.906	1	-260.8	1.42
	10/7/99	14.77	16.6	6.98	0.839	8	-191.9	2.29
	4/25/00	15.39	15.2	6.85	0.900	0	-52.0	1.46
	10/20/00	14.25	17.0	6.96	0.857	0	-16.0	0.06
	4/18/01	13.46	11.9	6.87	1.130	0	-69.6	0.51
LF12:MW15A	10/21/98	8.21	15.5	6.52	0.697	0	14.1	0.00
	4/21/99	7.23	13.1	7.01	0.803	3	211.8	0.54
	10/7/99	8.23	15.2	6.65	0.782	0	165.9	0.00
	10/13/99 (dup)	8.16	15	7.09	0.594	0	181.3	0.00
	4/20/00	7.31	12.2	7.15	1.230	0	198.9	1.70
	10/18/00	7.60	14.4	7.22	0.862	0	179.9	0.14
	4/16/01	7.01	10.8	6.84	0.685	0	254.1	6.52
07-520-M	10/21/98	9.61	15.1	6.56	1.080	0	-134.9	5.19
	4/20/99	9.10	11.9	6.64	1.110	56	NA	0.62
	10/7/99	9.91	14.7	6.33	1.040	8	-78.3	0.37
	4/20/00	8.80	11.6	6.74	1.130	19	-123.0	2.12
	10/18/00	9.40	14.8	6.81	1.120	0	-116.5	0.20
	4/23/01	9.00	11.6	6.57	1.130	0	-66.8	0.18
05-DM-123S	10/21/98	7.44	14.7	6.57	0.805	3	7.7	0.76
	4/20/99	7.85	10.1	6.98	0.837	3	118.9*	0.50
	10/7/99	8.47	14.4	6.96	0.847	2	-3.1	0.15
	4/20/00	7.53	12.3	6.99	0.880	0	-83.9	ERR
	10/23/00	7.83	14.2	6.54	0.486	1	60.1	0.72
	4/16/01	7.18	10.1	6.82	0.692	0	105.0	8.97
05-DM-123I	10/21/98	8.39	14.0	6.61	0.793	8	-44.9	0.00
	4/20/99	7.70	10.9	7.11	0.841	7	98.5*	0.54
	10/7/99	8.3	13.7	7.16	0.841	1	-65.2	0.14
	4/20/00	7.38	12.5	7.04	0.859	2	-79.4	ERR
	10/23/00	7.70	13.7	6.73	0.471	0	-29.5	0.24
	4/10/01	7.11	13.0	6.97	0.699	0	18.9	13.35

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05-DM-123D	10/21/98	7.75	14.1	6.60	0.800	1	-160.0	0.10
	4/20/99	6.95	12.0	7.20	0.862	3	115.6*	0.59
	10/7/99	7.5	14.9	7.25	0.857	8	-79.7	0.67
	4/20/00	6.56	13.0	7.12	0.866	5	-67.9	ERR
	10/23/00	6.93	13.6	6.83	0.473	0	-112.7	0.24
	4/10/01	6.28	13.1	6.97	0.696	0	147.5	13.47
BMP-OU4-1B-60	10/21/98	8.71	14.1	6.53	1.410	0	-22.6	0.00
	4/16/99	7.98	12.8	8.14	1.230	0	-56.2	0.16
	10/5/99	9.08	14.2	6.89	1.440	0	-146.3	0.09
	4/18/00	7.21	13.4	7.02	1.200	10	-69.9	ERR
	10/16/00	8.12	15.1	6.99	1.470	0	90.6	0.04
	4/9/01	8.12	15.7	7.05	1.590	0	164.3	0.18
BMP-OU4-1C-84	10/20/98	8.53	15.5	6.73	1.150	19	-127.9	1.18
	4/16/99	7.85	11.2	7.06	1.180	0	159.1	0.94
	10/5/99	8.9	15.3	7.17	1.140	23	-266.1	0.21
	4/18/00	7.11	12.7	6.77	1.100	5	-89.6	ERR
	10/16/00	7.89	14.5	6.97	1.030	10	-156.9	0.11
	4/9/01	8.01	17.6	7.15	1.170	0	-85.9	0.66
OU4-MW-02A	4/23/98	11.65	12.3	7.20	0.920	0	-111.4	0.68
	10/20/98	13.25	14.5	6.96	1.150	112	-63.3	11.19
	4/19/99	12.10	12.0	6.91	1.150	1	75.0*	0.19
	10/5/99	13.76	14.8	6.51	1.060	37	-79.1	0.04
	4/17/00	11.69	13.4	7.11	1.190	16	-197.0	2.69
	10/23/00	12.88	14.9	7.16	1.160	1	110.3	0.52
	4/9/01	12.83	15.8	6.99	1.250	10	-68.7	1.36
OU4-MW-02B	4/23/98	11.32	13.5	7.40	1.040	0	99.9	0.98
	10/20/98	12.95	13.3	7.07	1.200	9	36.5	12.75
	4/19/99	12.15	13.4	7.15	1.060	5	186.1*	0.51
	10/7/99	13.52	13.6	7.75	0.836	0	103.2	0.69
	4/17/00	11.42	13.7	7.41	1.000	3	-90.0	3.18
	10/23/00	12.58	14.3	7.22	1.290	0	134.9	0.19
	4/9/01	12.52	15.9	7.13	1.270	0	-63.4	0.42

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OU4-MW-03B	4/21/98	12.26	13.4	7.53	1.080	0	12.3	1.97
	10/20/98	14.10	12.9	6.97	1.480	5	84.8	0.47
	4/21/99	12.87	13.1	8.56	1.100	0	-195.2	2.44
	10/13/99	14.55	15.2	6.51	1.250	0	130.6	0.00
	4/17/00	12.57	14.6	7.26	1.030	0	150.3	1.57
	10/18/00	13.56	13.7	7.27	1.800	0	-62.7	0.16
	4/16/01	11.93	13.4	6.88	1.180	0	232.4	10.64
OU4-MW-03C	4/21/98	20.85	13.4	7.28	0.940	0	-17.9	1.73
	10/20/98	13.92	13.2	6.99	1.300	16	120.7	2.17
	4/19/99	13.06	13.7	8.45	1.110	0	-189.8	0.09
	10/4/99	14.39	12.9	7.07	1.330	2	6.87	0.26
	4/17/00	12.40	14.5	7.23	1.080	0	139.5	1.50
	10/19/00	13.42	14.1	7.17	1.630	0	104.1	0.33
	4/9/01	13.38	15.4	7.25	1.260	2	198.8	0.17
OU4-MW-04A	4/23/98	12.38	11.5	6.96	0.980	0	161.3	1.23
	10/20/98	14.32	13.0	6.30	1.390	1	-70.3	1.53
	4/19/99	13.27	11.6	7.85	1.250	0	-186.9	0.27
	10/4/99	14.81	14.3	6.23	1.310	0	-36.1	0.00
	4/18/00	12.77	11.2	6.72	1.320	10	-26.5	ERR
	10/23/00	14.00	15.5	6.76	1.270	0	65.1	0.77
	4/11/01	8.74	11.7	6.71	1.270	5	-32.1	0.13
OU4-MW-12B	4/23/98	11.55	13.4	7.42	1.680	0	49.3	1.68
	10/20/98	13.21	14.4	6.62	1.030	0	78.9	1.32
	4/19/99	12.30	12.2	7.12	0.995	5	193.2*	2.90
	10/6/99	13.67	15.1	6.55	0.921	1	119.1	0.07
	4/17/00	11.67	14.5	7.07	0.960	3	103.3	0.74
	10/23/00	12.78	14.0	7.28	1.130	0	80.0	0.54
	4/9/01	12.67	14.6	7.27	1.090	3	194.7	0.25
CW04-060	4/14/00	6.31	16.3	7.31	0.920	37	-43.3	0.09
	11/2/00	20.87	14.9	7.49	1.050	0	-100.5	0.08
	4/10/01	19.91	13.6	6.93	0.822	0	240.6	0.28

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CW05-055	10/23/98	26.55	12.4	6.67	0.920	0	-62.9	0.94
	4/19/99	26.42	12.4	8.40	1.040	0	-193.4	0.11
	10/5/99	15.53	13.9	6.5	0.921	0	-71.1	0.00
	4/17/00	10.12	12.1	7.17	0.960	0	-70.9	1.51
	10/31/00	22.48	13.6	7.02	0.960	12	-65.3	1.15
	4/9/01	21.91	13.1	7.22	1.060	0	-40.6	0.20
CW05-085	10/21/98	27.13	12.2	7.00	1.040	0	-84.9	1.76
	4/21/99	27.47	11.6	7.08	0.702	NA	-55.7	0.09
	10/4/99	15.87	12.3	6.52	1.100	0	-54	ERR
	4/17/00	10.63	12.0	6.99	1.040	0	-98.2	ERR
	11/2/00	24.04	12.4	6.86	0.698	5	-41.0	0.22
	4/10/01	22.23	12.4	6.80	1.120	0	77.2	0.04
CW07-055	4/9/01	16.72	13.8	7.16	0.933	0	-39.1	0.15
CW10-055	4/9/01	22.56	13.3	7.43	0.686	25	273.7	14.91
HD-11	10/28/98	24.55	12.4	6.92	0.990	169	-94.3	0.55
	4/22/99	23.98	13.8	7.31	0.941	7	81.2	1.38
	10/5/99	13.97	13.3	6.67	1.000	5	-68.3	0.2
	4/18/00	8.64	14.1	7.37	1.000	10	-358.0	1.26
	11/2/00	21.76	12.7	6.87	0.637	2	-123.3	0.19
	4/10/01	19.84	12.9	7.24	1.060	3	-87.6	0.22
HD-12S	10/5/99	13.47	12.6	6.86	1.050	1	-5	0.79
	4/18/00	10.12	11.5	7.06	1.300	0	-1.0	1.78
	11/1/00	BTP	12.4	6.80	0.990	0	-37.2	1.34
	4/10/01	BTP	13.2	6.96	0.977	0	-32.5	0.05
HD-12M	10/28/98	24.10	12.2	6.92	0.980	15	-89.8	0.17
	4/22/99	23.33	12.3	7.09	0.649	NA	-66.5	0.11
	10/5/99	14.28	11.8	7.13	1.000	5	-25.9	0.54
	4/18/00	9.03	11.2	7.14	0.950	0	-19.4	1.65
	11/1/00	22.38	11.8	6.88	0.960	0	-72.8	0.22
	4/10/01	19.64	12.7	7.08	0.990	6	-77.7	0.09

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HD-13S	10/26/98	22.45	13.3	7.12	0.980	44	-47.1	6.17
	4/22/99	21.53	13.6	7.10	1.030	24	13.5	3.90
	10/5/99	11.81	15.2	6.7	0.920	22	19.9	4.67
	4/17/00	5.71	17.0	7.26	0.940	81	-235.0	2.44
	11/1/00	18.36	12.3	7.40	0.940	0	-66.5	5.39
	4/11/01	16.10	13.4	6.96	1.000	5	-68.2	5.44
MAD-MON-127 (HD-13D)	4/17/00	6.93	13.9	7.40	0.940	5	-274.0	1.26
	11/1/00	19.21	12.2	7.43	0.950	0	-105.0	0.93
	4/11/01	17.16	13.0	7.00	1.010	0	-107.6	0.23
HSA-4A (MW131M)	10/26/98	20.15	12.3	7.06	0.980	24	-96.4	0.24
	4/21/99	19.62	13.3	8.26	0.950	25	-500.1	0.79
	10/4/99	9.65	18.8	7.08	0.980	42	9.31	0.2
	4/17/00	3.98	11.8	7.27	1.320	70	-29.3	1.79
	11/2/00	16.20	12.3	7.20	0.990	0	-89.0	0.22
	4/10/01	15.41	12.6	6.93	1.030	9	-83.8	0.62
HSA-4B (MW131S)	10/26/98	NR	13.0	7.01	0.920	25	-84.1	0.10
	4/21/99	NR	13.4	8.30	0.920	29	-454.8	1.03
	10/5/99	NR	12	6.83	1.070	16	96.3	0.27
	4/17/00	NR	12.1	6.94	0.979	101	-11.4	ERR
	11/1/00	NR	13.6	7.19	0.940	0	-41.4	0.39
	4/10/01	NR	12.3	6.87	0.970	0	-23.0	9.87
HSA-5 (MW132S)	10/26/98	24.35	12.0	6.99	0.930	0	20.9	0.07
	4/22/99	23.20	12.3	6.97	0.922	9	133.5	0.26
	10/5/99	13.05	11.3	7.07	0.976	1	23.4	0.18
	4/18/00	8.09	11.2	7.24	0.990	13	-175.0	1.56
	11/2/00	21.09	11.4	6.82	0.566	5	58.2	0.13
	4/10/01	19.23	13.0	6.87	0.783	0	193.3	13.57
TTW-02	4/19/01	14.92	11.3	7.25	1.410	0	-93.2	0.51

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CW3-77	10/21/98	31.31	16.7	6.76	0.543	18	93.8	ERR
	4/21/99	32.65	12.4	7.39	0.641	5	255.9*	4.62
	10/13/99	23.51	15.6	6.68	0.807	9	20.6	1.06
	4/25/00	23.54	13.4	7.27	0.966	6	143.0	1.77
	10/18/00	24.06	15.0	6.90	0.481	2	38.6	0.31
	4/16/01	24.01	13.8	6.96	0.682	0	151.2	2.72
CHP4-MW01	4/22/98	27.67	15.7	7.03	1.610	304	-44.4	4.74
	10/16/98	27.63	16.9	6.99	1.550	71	-38.0	3.25
	4/15/99	27.17	16.2	8.37	1.780	15	-72.5	4.14
	10/6/99	29.13	16.2	6.49	1.690	300	25.2	3.72
	4/18/00	27.53	15.4	6.77	1.820	157	-58.7	3.97
	10/17/00	27.50	15.8	7.18	1.830	-10*	-13.8	4.70
	4/10/01	27.78	15.9	7.10	1.610	2	-27.4	4.18
GR-330	4/24/98	33.19	14.4	7.03	0.970	1	-129.3	2.61
	10/16/98	33.09	14.2	7.01	0.970	13	9.3	2.93
	4/15/99	32.72	13.9	8.30	1.050	0	601.1	3.48
	10/6/99	34.49	15.9	6.45	0.950	21	42.2	1.96
	4/24/00	33.87	15.1	7.27	0.904	10	NA	2.49
	10/20/00	33.89	15.6	7.18	0.990	0	87.1	1.96
	4/11/01	34.06	14.7	6.77	0.741	0	133.4	1.47
GR-333	4/22/98	14.45	15.1	7.62	1.130	0	77.8	5.82
	10/27/98	15.35	16.0	6.52	0.859	31	4.8	6.00
	4/27/99	14.45	16.2	7.30	0.630	14	35.4	5.19
	10/6/99	16.31	15.7	7.25	1.040	2	54.7	4.82
	4/25/00	16.47	15.4	7.15	0.980	18	NA	4.29
	10/20/00	15.40	16.2	7.22	1.010	0	56.9	3.08
	4/18/01	14.43	14.7	7.19	1.290	0	6.0	3.16

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GR-334	4/22/98	13.85	15.6	7.72	0.815	0	-145.1	0.93
	10/28/98	14.62	15.0	6.56	0.603	0	-104.7	0.27
	4/22/99	13.76	15.5	8.62	0.800	1	-240.6	0.33
	10/6/99	15.59	15.2	7.32	0.758	7	-113.5	0.13
	4/25/00	15.76	14.3	7.26	0.775	0	NA	1.54
	10/20/00	14.67	14.8	7.33	0.891	0	-143.1	0.05
	4/18/01	13.72	14.4	7.25	0.950	0	-120.1	0.05
OU10-MW-03S	4/19/00**	26.70	14.4	7.50	0.930	Offscale	-120.0	6.55
	10/17/00	27.81	14.7	7.49	0.688	10	216.3	5.35
	4/11/01	28.04	14.9	6.90	0.679	0	189.9	5.62
OU10-MW-06D	4/20/98	27.46	13.6	7.55	1.030	0	-94.7	5.04
	10/23/98	29.29	14.1	5.15	0.940	23	413.1	8.50
	4/16/99	27.96	10.5	8.70	0.930	0	-110.1	2.52
	10/8/99	29.85	15.6	7.22	0.607	0	173.9	3.65
	4/21/00	27.56	11.9	7.18	0.940	0	-34.3	3.47
	10/17/00	28.79	13.9	7.42	0.733	0	-27.3	1.62
	4/11/01	28.52	13.8	7.08	0.908	1	-81.8	0.82
OU10-MW-06S	4/24/98	12.84	14.7	7.44	0.911	0	130.0	1.59
	10/23/98	27.45	14.9	4.56	0.827	55	107.7	3.82
	4/16/99	26.56	14.1	8.57	0.936	6	-139.1	1.01
	10/6/99	28.59	13.9	7.24	0.876	5	76	1.58
	4/21/00	26.49	13.0	7.15	1.270	0	68.6	1.74
	10/17/00	27.69	14.1	7.43	0.672	0	112.0	1.60
	4/11/01	27.74	14.3	7.14	0.819	1	53.3	0.31
OU10-MW-11D	4/23/98	11.65	14.5	7.30	1.260	0	161.7	2.03
	10/20/98	12.23	14.2	6.60	0.833	3	181.8	0.77
	4/16/99	11.60	13.2	7.03	0.893	65	229.3	0.90
	10/6/99	13.56	16	6.91	1.520	22	129.2	0.39
	4/18/00	11.49	13.8	7.19	1.270	0	142.8	1.80
	10/18/00	12.51	14.8	6.67	0.545	0	105.9	0.29
	4/16/01	11.64	13.4	6.99	0.840	0	93.9	0.17

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OU10-MW-11S	4/27/98	11.48	13.7	7.13	0.772	1	24.4	3.36
	10/20/98	11.37	14.3	6.42	0.820	3	214.2	3.30
	4/21/99	11.70	13.3	7.10	0.805	19	260.7*	3.25
	10/13/99	13.31	16.7	6.56	0.820	0	146.4	3.31
	4/18/00	11.28	14.1	7.24	1.220	0	180.4	5.16
	10/18/00	13.20	15.6	6.67	0.559	1	117.5	3.51
	4/16/01	11.58	13.8	6.97	0.862	0	94.5	3.58
OU10-MW-19D	4/24/98	33.58	16.8	7.30	1.010	0	231.6	5.21
	10/20/98	34.44	14.8	6.66	0.916	0	173.2	4.13
	4/19/99	33.69	14.6	7.27	0.683	15	223.1	4.60
	10/6/99	35.35	15.1	7.14	1.070	2	81.2	4.87
	4/19/00	33.56	14.7	7.24	1.010	2	-116.0	5.33
	10/20/00	34.40	15.3	6.73	0.561	1	177.4	5.36
	4/10/01	34.41	15.5	7.00	1.040	0	36.1	4.73
OU10-MW-21S	10/27/98	8.10	15.5	6.57	0.736	4	81.0	1.46
	4/14/99	7.65	11.7	7.00	0.910	0	217.8	0.75
	10/7/99	8.62	15.1	7.34	0.626	1	207.8	0.02
	4/19/00	7.11	12.8	7.09	0.892	2	-64.0	1.00
	10/19/00	7.70	14.9	6.68	0.570	0	73.1	0.81
	4/18/01	6.89	11.7	6.86	1.240	0	86.7	1.64
OU10-MW-25S	4/24/98	28.05	14.1	7.11	1.320	5	182.4	4.22
	10/20/98	27.80	15.1	6.72	0.765	0	76.3	2.48
	4/16/99	27.35	12.8	7.10	0.830	119	40.1	4.36
	10/6/99	29.75	14.2	7.23	0.786	15	94	3.29
	4/18/00	28.03	14.2	7.38	0.860	3	-81.0	5.25
	10/17/00	28.81	14.2	7.37	0.953	-10*	122.9	3.22
	4/12/01	28.81	15.3	6.89	0.796	0	76.4	3.69

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NEA-MW37-1D	4/27/98	10.30	13.7	7.31	0.892	0	41.3	1.14
	10/16/98	11.00	18.9	7.07	0.665	105	-112.4	8.77
	4/14/99	10.53	13.3	8.55	0.947	0	-240.0	0.11
	10/8/99	12.25	14.1	7.07	0.625	0	32.6	1.77
	4/19/00	9.05	13.3	7.05	0.897	1	-85.4	0.73
	10/19/00	10.12	16.3	6.71	0.565	-10*	-40.9	0.46
	4/18/01	9.35	13.4	6.86	1.220	0	364.0	0.09
23-578-M	10/29/98	31.82	15.1	6.62	1.590	31	94.8	6.11
	4/20/99	31.40	15.9	8.75	1.410	2	-138.9	5.40
	10/6/99	33.42	16.5	6.4	1.510	22	155.7	3.88
	4/18/00	31.99	14.4	7.28	1.300	10	-53.9	6.21
	10/17/00	31.92	15.1	7.39	1.620	-10*	95.2	5.24
	4/10/01	32.33	15.5	7.09	1.560	0	34.7	6.04
<b>Basewide Annual Metals</b>								
14-554-M	4/15/98	9.29	9.6	7.00	0.732	0	280.4	6.83
	4/26/99	7.71	10.1	7.06	0.779	16	229.7	4.93
	4/24/00	6.99	10.8	7.40	0.864	5	-149.0	5.93
	4/18/01	9.18	10.0	7.30	1.070	0	205.1	4.84
SP11-MW08	4/27/00**	8.46	13.4	7.12	1.240	140	-105.0	1.35
NEA-MW01-1S	4/14/98	16.38	12.7	7.26	1.030	20	52.2	6.71
	4/22/99	15.40	13.5	7.02	0.910	NA	13.7	7.22
	4/20/00	13.86	13.9	7.33	1.050	38	-75.0	8.54
	4/18/01	16.45	11.2	7.36	1.240	0	-11.5	6.81
NEA-MW02-2S	4/14/98	10.25	11.3	7.34	0.823	1	112.2	7.96
	4/22/99	7.12	18.1	7.10	0.877	111	204.7	4.48
	4/20/00	7.42	12.4	7.33	0.840	38	-81.0	7.63
	4/18/01	10.31	10.4	7.41	1.290	0	195.8	6.19

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NEA-MW20-2S	4/17/98	9.38	11.6	7.03	0.781	7	-99.4	11.26
	4/26/99	8.95	12.5	6.67	0.911	9	-164.4	0.70
	4/20/00	8.93	15.1	6.74	0.970	17	-189.3	0.53
	4/17/01	10.10	11.3	7.02	0.795	2	-103.7	0.08
	4/19/01 (DUP)	10.21	12.2	6.90	0.943	0	-124.8	0.06
NEA-MW23-2S	4/16/98	8.50	10.3	7.14	0.712	0	-44.5	4.78
	4/23/99	8.42	14.7	7.10	0.781	2	207.5	1.94
	4/20/00	6.94	11.9	7.34	1.250	0	128.3	3.90
	4/17/01	7.75	9.7	6.88	0.796	0	67.0	2.46
NEA-MW24-2S	4/14/98	10.92	11.7	7.20	0.910	0	175.1	5.81
	4/23/99	9.65	14.2	7.02	0.920	17	149.3	4.41
	4/20/00	9.96	12.7	7.26	1.350	22	43.7	7.24
	4/17/01	10.85	10.0	6.81	0.940	14	88.2	13.17
NEA-MW31-3S	4/16/98	15.05	13.5	7.27	1.080	0	102.2	8.61
	4/22/99	14.03	13.1	8.28	0.940	4	-242.2	5.34
	4/20/00	14.32	14.1	7.03	1.200	9	-109.1	5.06
	4/18/01	14.98	11.8	6.79	1.330	0	67.5	9.15
CW15-055	4/15/98	16.33	12.5	7.20	0.639	0	63.7	4.71
	4/27/99	23.47	12.7	7.36	0.567	23	-70.8	0.26
	4/27/00	13.23	11.1	7.17	0.906	2	-101.0	2.99
	4/19/01	17.35	12.0	6.90	0.716	0	ERR	0.07
OU8-MW-02D	4/14/98	32.85	15.7	7.63	1.420	205	-60.2	10.62
	4/22/99	36.41	16.5	7.33	0.666	995	-82.3	0.38
	4/25/00	30.67	16.9	7.25	0.928	offscale	37.0	1.33
	4/11/01	31.57	16.6	7.47	0.743	40	132.5	0.37

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Well Number	Date Sampled	Static Water Level (ft, TOC)	Temp. (C°)	pH (SU)	Conductivity (mS/cm)	Turbidity (NTU)	ORP (mv)	DO (mg/L)
OU8-MW-23D	4/15/98	31.05	16.2	7.25	0.910	5	-78.8	10.20
	4/27/99	34.90	15.9	6.99	1.200	7	-63.0	0.22
	4/26/00	30.56	14.8	7.23	1.090	0	42.0	1.55
	4/12/01	30.68	17.2	6.73	0.939	0	-71.6	0.20
P4-2 (EFDZ10-MW02)	4/17/98	11.83	13.0	7.38	0.764	239	-129.8	13.07
	4/26/99	5.43	13.3	6.73	0.876	19	124.1	1.52
	4/27/00	8.28	10.0	7.12	0.758	20	225.0	5.38
	4/19/01	5.81	9.9	7.23	0.957	0	155.6	6.93
EFDZ3-MW02	4/16/98	19.54	13.2	6.99	0.950	8	53.6	12.99
	4/26/99	9.67	14.0	7.21	0.685	88	107.4	1.87
	4/27/00	9.75	16.0	7.04	1.070	299	-42.5	0.55
	4/12/01	8.09	13.9	6.82	1.010	42	9.3	1.72
EFDZ3-MW03	4/17/98	BTP	11.8	7.34	1.070	30	112.4	11.74
	4/21/99	4.97	18.2	7.16	0.420	NA	197.9	1.68
	4/27/00	5.79	24.4	7.13	0.674	10	75.0	2.50
	4/19/01	6.25	17.8	6.79	0.585	0	ERR	2.48
EFDZ8-MW01	4/15/98	17.82	12.7	9.17	1.100	74	183.0	10.71
	4/26/99	15.06	13.9	8.53	1.160	68	105.5	3.47
	4/27/00	15.37	16.4	8.26	1.210	306	-55.4	0.92
	4/19/01	15.75	17.8	7.20	1.760	0	ERR	1.99
OU10-MW-03S	4/24/00**	26.58	15.1	7.41	0.914	24	NA	6.74
OU10-MW10I	4/24/00	30.45	14.5	7.29	0.951	19	-172.0	3.76
	4/12/01	30.94	16.6	6.87	0.960	1	72.9	2.70
25-582-M	4/15/98	29.30	14.0	7.27	0.935	0	137.6	5.12
	4/22/99	27.63	14.3	7.16	0.533	NA	189.7	5.44
	4/21/00	28.13	12.1	7.33	0.870	0	-77.0	6.81
	4/12/01	29.12	15.7	6.91	0.795	0	69.9	5.33
	4/12/01 (DUP)	29.13	14.8	6.78	0.653	0	130.1	5.67

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25-583-M	4/23/99	15.73	14.6	8.39	0.871	9	46.7	5.35
	4/21/00	16.22	12.5	7.22	0.936	1	-119.0	7.58
	4/12/01	17.32	14.2	6.90	0.800	0	66.2	5.97
25-584-M	4/14/98	19.47	13.8	7.55	0.924	0	126.3	5.98
	4/23/99	18.15	14.5	8.38	0.884	7	723.8	5.98
	4/21/00	18.71	13.4	7.23	0.920	0	-115.0	6.97
	4/12/01	19.82	14.6	6.75	0.671	1	140.4	6.23
<b>Building 59 Sampling for VOCs</b>								
B59-MW01	10/13/98	5.07	18.0	6.58	0.755	47	49.8	NA
	4/27/99	7.00	14.6	7.99	0.548	21	131.9	4.60
	4/11/01	3.36	13.0	7.35	1.760	12	213.6	13.23
B59-MW02	10/8/98	11.50	16.4	7.11	1.020	125	-10.6	1.35
	4/27/99	10.92	14.8	7.32	0.910	145	156.6	0.38
	4/11/01	10.66	14.9	7.07	0.600	0	128.9	13.32
B59-MW03	10/8/98	11.55	18.1	7.20	0.643	23	NA	1.32
	4/27/99	9.60	14.3	7.17	0.685	off scale	163.3	0.31
	4/11/01	8.74	15.9	7.25	0.642	37	44.0	0.32
B59-MW04	10/8/98	6.16	20.6	7.32	0.735	58	56.9	5.76
	4/27/99	7.00	14.4	7.79	0.685	off scale	194.3	1.97
	4/11/01	Not sampled, wellhead damaged.						

BTP - Below top of pump  
DO - Dissolved Oxygen  
mg/L - milligrams per liter  
ft, TOC - feet below top of casing  
ft, MSL - feet, ref. Mean sea level

C° - Degrees Celsius  
SU - Standard Units  
mV - millivolts  
NA - Not available  
ORP - Oxygen Reduction Potential

\* or ERR - Meter not functioning  
\*\* - Wells SP11-MW08 and OU10-MW03 were sampled with a bailer for VOCs, then sampled at a later date with a pump for metals during the April 2000 sampling event.  
NR - No reading. Broken off water level probe obstructing well 131S.  
DUP - Duplicate sample collected during a different purging event.

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Sample Location	Management Area	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	1,2-DCA (µg/L)	Total 1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)	MTBE (µg/L)
	<b>MCL</b>		<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>5</b>	<b>70</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>NCL</b>
BS5 P-1	BS5	04-Jun-97	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		04-Nov-98	ND	ND	ND	ND	ND	ND	1.5	0.41 J	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	ND	1.6	0.32 J	ND	NS
		08-Oct-99	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		26-Apr-00	ND	ND	ND	ND	ND	ND	0.56	ND	ND	NS
		20-Oct-00	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		19-Apr-01	ND	ND	ND	ND	ND	ND	0.38 J	ND	ND	ND
BS5 P-2	BS5	04-Jun-97	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		04-Nov-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		08-Oct-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		26-Apr-00	ND	0.33 J	ND	ND	ND	ND	ND	ND	ND	NS
		20-Oct-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		19-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS5 P-3	BS5	06-Jun-97	ND	ND	ND	ND	ND	ND	(23)	ND	ND	NS
		04-Nov-98	ND	ND	ND	ND	ND	ND	(29)	0.27 J	ND	NS
		04-Nov-98	ND	ND	ND	ND	ND	ND	(33)	0.30 J	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	ND	(30)	ND	ND	NS
	Duplicate	08-Oct-99	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		26-Apr-00	ND	ND	ND	ND	ND	ND	(25)	ND	ND	NS
		26-Apr-00	ND	ND	ND	ND	ND	ND	(24)	ND	ND	NS
		20-Oct-00	ND	ND	ND	ND	ND	ND	(22)	0.19 J	ND	ND
	Duplicate	20-Oct-00	ND	ND	ND	ND	ND	ND	(20)	ND	ND	ND
		19-Apr-01	ND	ND	ND	ND	ND	ND	(19)	ND	ND	ND
BS5 P-4	BS5	06-Jun-97	ND	ND	ND	ND	ND	ND	(29)	ND	ND	NS
		04-Nov-98	ND	ND	ND	ND	ND	ND	(33)	0.34 J	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	ND	(20)	ND	ND	NS
		08-Oct-99	ND	ND	ND	ND	ND	ND	(31)	ND	ND	NS
	Duplicate	08-Oct-99	ND	ND	ND	ND	ND	ND	(30)	0.39 J	ND	NS
		26-Apr-00	ND	ND	ND	ND	ND	ND	(25)	ND	ND	NS
		20-Oct-00	0.35 J	0.33 J	ND	ND	ND	ND	(23)	ND	ND	ND
		20-Apr-01	ND	ND	ND	ND	ND	ND	(17)	ND	ND	ND
	Duplicate	20-Apr-01	ND	ND	ND	ND	ND	ND	(17)	ND	ND	ND
BS6 P-1	BS6	06-Jun-97	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		04-Nov-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		26-Apr-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		20-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BS6 P-2	BS6	05-Jun-97	ND	ND	44.0	54.0	ND	ND	ND	ND	ND	NS
		05-Nov-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		26-Apr-00	0.69	1.7	ND	ND	ND	ND	ND	ND	ND	NS
		20-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-NEA-MW27-3I	OU2 (OU10)	30-Mar-93	ND	ND	ND	ND	ND	ND	(21)	ND	ND	NS
		25-Aug-93	ND	ND	ND	ND	ND	ND	(22)	ND	ND	NS
		07-Dec-93	ND	ND	ND	ND	ND	ND	(20)	ND	ND	NS
		27-Apr-98	ND	ND	ND	ND	ND	ND	(26)	0.17 J	ND	NS
		28-Oct-98	ND	ND	ND	ND	ND	ND	(18)	ND	ND	NS
		21-Apr-99	ND	ND	ND	ND	ND	ND	(11)	ND	ND	NS
		13-Oct-99	ND	ND	ND	ND	ND	ND	(17)	ND	ND	NS
		19-Apr-00	ND	ND	ND	ND	ND	0.27 J	(23)	0.30 J	ND	NS
		18-Oct-00	ND	0.21 J	ND	ND	ND	ND	(15)	ND	ND	ND
		16-Apr-01	ND	ND	ND	ND	ND	ND	(16)	ND	ND	ND

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	<b>MCL</b>		<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>5</b>	<b>70</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>NCL</b>
WP-NEA-MW34-2S	OU2	15-Dec-92	ND	ND	ND	ND	ND	ND	ND	(15)	ND	NS
		26-Apr-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		23-Apr-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		23-Oct-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		07-Oct-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		07-Oct-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		19-Apr-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		19-Apr-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		19-Oct-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		17-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FTA2:MW02C	OU3	13-Jul-93	(6.0)	ND	2.0	14.0	ND	ND	ND	ND	ND	NS
		24-Jan-94	2.0	ND	2.0	20.0	ND	ND	ND	ND	ND	NS
		23-Apr-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		28-Oct-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		22-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		22-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		07-Oct-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		25-Apr-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		20-Oct-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		18-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
LF12:MW15A	OU3	06-Jul-93	ND	ND	ND	ND	ND	ND	ND	(12.11)	ND	NS
		10-Jan-94	ND	ND	ND	ND	ND	ND	ND	1.0	ND	NS
		21-Oct-98	ND	ND	ND	ND	ND	0.57 J	ND	1.8	ND	NS
		21-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		07-Oct-99	ND	ND	ND	ND	ND	0.57	ND	2.5	ND	NS
		13-Oct-99	ND	ND	ND	ND	ND	ND	ND	2.5	ND	NS
		20-Apr-00	ND	ND	ND	ND	ND	ND	ND	2.7	ND	NS
		18-Oct-00	ND	0.21 J	ND	ND	ND	0.45 J	ND	2.2	ND	ND
		16-Apr-01	ND	ND	ND	ND	ND	0.41 J	ND	2.4	ND	ND
07-520-M	OU3	01-Jul-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		01-Jun-94	ND	ND	ND	ND	ND	0.3 J	ND	ND	ND	NS
		21-Oct-98	ND	ND	ND	ND	ND	0.21 J	ND	ND	ND	NS
		20-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		20-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		07-Oct-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		20-Apr-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		18-Oct-00	ND	0.21 J	ND	ND	ND	0.21 J	ND	ND	ND	ND
		23-Apr-01	ND	ND	ND	ND	ND	0.37 J	ND	ND	ND	ND
05-DM-123S-M	OU3	13-Jul-93	ND	ND	ND	ND	ND	ND	ND	2.0	ND	NS
		11-Jan-94	ND	ND	ND	ND	ND	ND	ND	2.0	ND	NS
		14-Apr-94	ND	ND	ND	ND	ND	ND	ND	2.0	ND	NS
		31-Aug-94	ND	ND	ND	ND	ND	ND	ND	2.0	ND	NS
		21-Oct-98	ND	ND	ND	ND	ND	0.85 J	ND	2.2	ND	NS
		20-Apr-99	ND	ND	ND	ND	ND	0.42 J	ND	1.3	ND	NS
		07-Oct-99	ND	ND	ND	ND	ND	0.85	ND	2.2	ND	NS
		20-Apr-00	ND	ND	ND	ND	ND	1.2	ND	1.8	ND	NS
		23-Oct-00	ND	ND	ND	ND	ND	0.68	ND	2.5	ND	ND
		23-Oct-00	ND	ND	ND	ND	ND	0.68	ND	2.6	ND	ND
		16-Apr-01	ND	ND	ND	ND	ND	0.92	ND	2.5	ND	ND
05-DM-123I-M	OU3	26-Jul-93	ND	ND	ND	ND	ND	ND	ND	2.0	ND	NS
		11-Jan-94	ND	ND	ND	ND	ND	ND	ND	2.0	ND	NS
		14-Apr-94	ND	ND	ND	ND	ND	ND	ND	2.0	ND	NS
		31-Aug-94	ND	ND	ND	ND	ND	ND	ND	2.2	ND	NS
		21-Oct-98	ND	ND	ND	ND	ND	0.48 J	ND	2.7	ND	NS
		20-Apr-99	ND	ND	ND	ND	ND	ND	ND	1.0	ND	NS
		07-Oct-99	ND	ND	ND	ND	ND	0.36 J	ND	2.6	ND	NS
		20-Apr-00	ND	ND	ND	ND	ND	0.39 J	ND	2.9	ND	NS
		23-Oct-00	ND	ND	ND	ND	ND	0.34 J	ND	2.5	ND	ND
		10-Apr-01	ND	ND	ND	ND	ND	0.25 J	ND	1.9 J	ND	ND

**Table 6-2**  
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Sample Location	Management Area	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	1,2-DCA (µg/L)	Total 1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)	MTBE (µg/L)
	<b>MCL</b>		<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>5</b>	<b>70</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>NCL</b>
05-DM-123D-M	OU3	22-Jul-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		11-Jan-94	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		14-Apr-94	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		31-Aug-94	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		21-Oct-98	ND	ND	ND	ND	ND	ND	ND	1.6	ND	NS
		20-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		07-Oct-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		20-Apr-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		23-Oct-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		10-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BMP-OU4-1B-60	OU4	21-Oct-98	ND	ND	ND	ND	ND	3.1	ND	4.5	0.5 J	NS
		16-Apr-99	ND	ND	ND	ND	ND	1.5	ND	1.8	ND	NS
		05-Oct-99	ND	ND	ND	ND	ND	3.2	ND	3.2	0.42 J	NS
		18-Apr-00	ND	ND	ND	ND	ND	2.8	ND	2.6	1.3	NS
		16-Oct-00	ND	0.22 J	ND	ND	ND	2.9	ND	2.5	0.34 J	ND
		09-Apr-01	ND	ND	ND	ND	ND	2.9	ND	2.3	0.49 J	ND
BMP-OU4-1C-84	OU4	20-Oct-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		16-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		05-Oct-99	ND	ND	ND	ND	ND	0.27 J	ND	ND	ND	NS
		18-Apr-00	ND	ND	ND	ND	ND	0.39 J	ND	ND	ND	NS
		16-Oct-00	ND	0.22 J	ND	ND	ND	0.29 J	ND	ND	ND	ND
		09-Apr-01	ND	ND	ND	ND	ND	0.27 J	ND	ND	ND	ND
OU4-MW-02A	OU4	22-Jul-93	ND	ND	ND	ND	ND	ND	ND	2.0	ND	NS
		26-Aug-93	ND	ND	ND	ND	ND	ND	ND	4.0	ND	NS
		15-Dec-93	ND	ND	ND	ND	ND	ND	ND	(5.0)	ND	NS
		23-Apr-98	ND	ND	ND	ND	ND	4.4	ND	0.56 J	ND	NS
		20-Oct-98	ND	ND	ND	ND	ND	7.1	ND	1.7	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	3.5	ND	0.36 J	ND	NS
		05-Oct-99	ND	ND	ND	ND	ND	9.7	ND	3.0	ND	NS
		17-Apr-00	ND	ND	ND	ND	ND	3.9	ND	0.40 J	ND	NS
		23-Oct-00	ND	ND	ND	ND	ND	7.01 J	ND	2.8	ND	ND
		09-Apr-01	ND	ND	ND	ND	ND	6.2	ND	2.3	ND	ND
OU4-MW-02B	OU4	15-Dec-93	ND	ND	ND	ND	ND	ND	ND	(23)	ND	NS
		26-Aug-93	ND	ND	ND	ND	ND	ND	ND	(22)	ND	NS
		23-Apr-98	ND	ND	ND	ND	ND	0.74 J	ND	(21)	ND	NS
		20-Oct-98	ND	ND	ND	ND	ND	0.69	ND	(16)	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	ND	ND	(9.4)	ND	NS
		07-Oct-99	ND	ND	ND	ND	ND	0.98	ND	(15)	ND	NS
		17-Apr-00	ND	ND	ND	ND	ND	0.70	ND	(16)	ND	NS
		23-Oct-00	ND	ND	ND	ND	ND	0.74	ND	(12)	ND	ND
		09-Apr-01	ND	ND	ND	ND	ND	0.84	ND	(12)	ND	ND
OU4-MW-03B	OU4	24-Aug-93	ND	ND	ND	ND	ND	ND	ND	(17)	ND	NS
		15-Dec-93	ND	ND	ND	ND	ND	ND	ND	(16)	ND	NS
		21-Apr-98	ND	ND	ND	ND	ND	0.61 J	ND	(12)	ND	NS
		20-Oct-98	ND	ND	ND	ND	ND	0.61	ND	(10)	ND	NS
		21-Apr-99	ND	ND	ND	ND	ND	0.59	ND	(9.5)	ND	NS
		13-Oct-99	ND	ND	ND	ND	ND	0.95	ND	(7.9)	ND	NS
		17-Apr-00	ND	ND	ND	ND	ND	0.61	ND	(8.2)	ND	NS
		19-Apr-00	ND	ND	ND	ND	ND	0.70	ND	(8.6)	ND	NS
		18-Oct-00	ND	0.25 J	ND	ND	ND	1.1	ND	(7.3)	ND	ND
		16-Apr-01	ND	ND	ND	ND	ND	0.94	ND	(7.4)	ND	ND
OU4-MW-03C	OU4	24-Aug-93	ND	ND	ND	ND	ND	ND	ND	(22)	ND	NS
		14-Dec-93	ND	ND	ND	ND	ND	ND	ND	(24)	ND	NS
		21-Apr-98	ND	ND	ND	ND	ND	0.96 J	ND	(21)	ND	NS
		20-Oct-98	ND	ND	ND	ND	ND	1.0	ND	(15)	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	0.94	ND	(5.4)	ND	NS
		04-Oct-99	ND	ND	ND	ND	ND	1.3	ND	(8.6)	ND	NS
		17-Apr-00	ND	ND	ND	ND	ND	1.2	ND	(7.9)	ND	NS
		19-Oct-00	ND	0.19 J	ND	ND	ND	1.2	ND	(8.5)	ND	ND
		09-Apr-01	ND	ND	ND	ND	ND	1.0	ND	(6.3)	ND	ND

**Table 6-2**  
**Basewide LTM April 2001 and Historic Groundwater**  
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Sample Location	Management Area	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	1,2-DCA (µg/L)	Total 1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)	MTBE (µg/L)
	<b>MCL</b>		<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>5</b>	<b>70</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>NCL</b>
OU4-MW-04A	OU4	22-Jul-93	ND	ND	ND	ND	ND	ND	ND	ND	0.5 J	NS
		23-Aug-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		13-Dec-93	ND	ND	ND	ND	ND	ND	ND	ND	(2.0)	NS
		23-Apr-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		20-Oct-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		04-Oct-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		18-Apr-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		23-Oct-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		11-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OU4-MW-12B	OU4	26-Aug-93	ND	ND	ND	ND	ND	ND	ND	(12)	ND	NS
		15-Dec-93	ND	ND	ND	ND	ND	ND	ND	(14)	ND	NS
		23-Apr-98	ND	ND	ND	ND	ND	0.70 J	1.2	(11)	ND	NS
		20-Oct-98	ND	ND	ND	ND	ND	1.1	2.5	(9.0)	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	0.75	(5.0)	4.4	ND	NS
		06-Oct-99	ND	ND	ND	ND	ND	1.2	4.4	(9.4)	ND	NS
		17-Apr-00	ND	ND	ND	ND	ND	0.84	(5.4)	(7.8)	ND	NS
		23-Oct-00	0.19 J	0.63 J	ND	ND	ND	0.81	(5.3)	(6.9)	ND	ND
		09-Apr-01	ND	ND	ND	ND	ND	0.86	(5.7)	(6.9)	ND	ND
CW04-060	OU5	01-Sep-90	ND	ND	ND	ND	ND	0.3	ND	ND	ND	NS
		01-Nov-91	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		01-Nov-92	ND	ND	ND	0.2	0.4	1.0	ND	ND	ND	NS
		01-Oct-93	ND	ND	ND	ND	ND	1.5	ND	ND	ND	NS
		01-Apr-94	ND	10	ND	ND	ND	0.8	ND	0.3	ND	NS
		01-Dec-94	ND	ND	ND	ND	2.0	2.0	ND	ND	ND	NS
		01-Sep-95	ND	ND	ND	ND	ND	1.0	ND	ND	ND	NS
		01-Dec-96	ND	ND	ND	ND	ND	1.6	ND	ND	ND	NS
		01-Sep-97	ND	ND	ND	ND	ND	1.3	ND	ND	ND	NS
		01-Jul-98	ND	ND	ND	ND	ND	0.66	ND	0.62	ND	NS
		14-Apr-00	ND	1.2	ND	ND	ND	1.4	ND	0.40 J	ND	NS
		02-Nov-00	ND	ND	ND	ND	0.29 J	0.89	ND	0.48 J	ND	ND
		10-Apr-01	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND
CW05-055	OU5	01-Sep-90	ND	0.3	ND	ND	ND	41	ND	(550)	1.0	NS
		01-Nov-91	0.7	ND	ND	0.2	ND	60	ND	(529)	ND	NS
		01-Nov-92	ND	ND	ND	ND	ND	15	ND	(19)	(3.0)	NS
		01-Oct-93	ND	ND	ND	ND	ND	1.7	ND	(8.4)	ND	NS
		01-Dec-94	ND	ND	ND	ND	ND	8.0	ND	3.0	(3.0)	NS
		01-Sep-95	ND	ND	ND	ND	ND	19.4	ND	1.81	(10.6)	NS
		01-Dec-96	ND	ND	ND	ND	ND	8.9	ND	(5.0)	ND	NS
		01-Sep-97	ND	ND	ND	1.6	ND	7.4	ND	2.1	ND	NS
		23-Oct-98	ND	ND	ND	ND	ND	19.7	ND	(6.1)	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	7.6	ND	(5.4)	ND	NS
		05-Oct-99	ND	ND	ND	ND	ND	4.0	ND	3.3	ND	NS
		17-Apr-00	ND	ND	ND	ND	ND	3.0	ND	2.0	0.54	NS
		31-Oct-00	0.13 J	0.29 J	ND	ND	ND	5.0	ND	1.8 J	0.31 J	ND
		09-Apr-01	ND	ND	ND	ND	ND	21.54	ND	(13)	1.9	ND
		09-Apr-01	ND	ND	ND	ND	ND	21.54	ND	(13)	(2.0)	ND
CW05-085	OU5	01-Sep-90	ND	ND	ND	ND	ND	40	ND	(770)	0.5	NS
		01-Nov-91	ND	ND	ND	ND	ND	30.2	ND	(346)	ND	NS
		01-Nov-92	ND	ND	ND	ND	ND	25	ND	(380)	ND	NS
		01-Oct-93	ND	ND	ND	ND	ND	25.6	ND	(250)	ND	NS
		01-Dec-94	ND	ND	ND	ND	ND	20	ND	(250)	ND	NS
		01-Sep-95	1.91 J	4.81 J	1.08 J	6.13	ND	22.54	ND	(132)	ND	NS
		01-Dec-96	ND	ND	ND	ND	ND	29.8	ND	(150)	ND	NS
		01-Sep-97	ND	ND	ND	ND	ND	20	ND	(130)	ND	NS
		21-Oct-98	ND	0.71 J	ND	ND	ND	10	ND	(83)	ND	NS
		21-Apr-99	ND	ND	ND	ND	ND	4.6	ND	(57)	ND	NS
		04-Oct-99	ND	ND	ND	ND	ND	23.6	ND	(150)	ND	NS
		17-Apr-00	ND	ND	ND	ND	ND	12.2	ND	(110 D)	0.74	NS
		02-Nov-00	ND	ND	ND	ND	ND	6.6	ND	(73)	ND	ND
		10-Apr-01	ND	ND	ND	ND	ND	7.67	ND	(67 D)	0.39 J	ND

**Table 6-2**  
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Sample Location	Management Area	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	1,2-DCA (µg/L)	Total 1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)	MTBE (µg/L)
	<b>MCL</b>		<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>5</b>	<b>70</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>NCL</b>
CW07-055	OU5	01-Sep-90	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		01-Nov-91	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		01-Mar-92	ND	ND	ND	ND	ND	ND	ND	1.0	ND	NS
		01-Apr-94	ND	5.0	ND	0.5	ND	ND	ND	ND	ND	NS
		01-Oct-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		01-Dec-94	ND	ND	ND	ND	1.0	ND	ND	ND	ND	NS
		01-Sep-95	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		01-Dec-96	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		01-Feb-97	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		01-Apr-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		01-Sep-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		09-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
CW10-055	OU5	01-Oct-93	ND	ND	ND	ND	ND	ND	ND	4.7	ND	NS
		01-Feb-94	ND	ND	ND	ND	ND	0.9	ND	(6.5)	ND	NS
		09-Apr-01	ND	ND	ND	ND	ND	ND	ND	1.0 J	ND	ND
CW15-055	OU5	01-Oct-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		01-Feb-94	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		19-Apr-01	ND	ND	0.46 J	ND	ND	ND	ND	ND	ND	ND
HD-11	OU5	01-Sep-90	ND	ND	ND	ND	ND	21	ND	(600)	ND	NS
		01-Nov-91	ND	ND	ND	ND	ND	35.3	ND	(394)	ND	NS
		01-Nov-92	ND	ND	ND	ND	ND	24	ND	(310)	ND	NS
		01-Oct-93	ND	0.8	ND	0.4	ND	7.0	ND	(370)	ND	NS
		01-Dec-94	ND	ND	ND	ND	ND	35	ND	(180)	ND	NS
		01-Sep-95	ND	ND	ND	ND	ND	23	ND	(108)	ND	NS
		01-Dec-96	ND	ND	ND	ND	ND	26.3	ND	(39)	ND	NS
		01-Sep-97	ND	ND	ND	ND	ND	22.6	ND	(22.6)	ND	NS
		28-Oct-98	ND	ND	ND	ND	ND	30.5 J	ND	(51)	ND	NS
		22-Apr-99	ND	ND	ND	ND	ND	16.48	ND	(31)	ND	NS
		05-Oct-99	ND	ND	ND	ND	0.47 J	27	ND	(8.4)	ND	NS
		18-Apr-00	ND	ND	ND	ND	ND	16.64	ND	(18)	0.77	NS
		02-Nov-00	ND	ND	ND	ND	0.20 J	29.63	ND	(22)	0.59 J	ND
		10-Apr-01	ND	ND	ND	ND	ND	16.54	ND	(7.0)	ND	ND
HD-12M	OU5	01-Sep-90	ND	ND	ND	ND	ND	ND	ND	(9.1)	ND	NS
		01-Nov-91	ND	ND	ND	ND	ND	ND	ND	4.8	ND	NS
		01-Nov-92	ND	0.4	ND	ND	ND	ND	ND	(7.0)	ND	NS
		01-Oct-93	ND	ND	ND	ND	ND	ND	ND	4.0	ND	NS
		01-Dec-94	ND	ND	ND	ND	ND	ND	ND	3.0	ND	NS
		01-Sep-95	ND	ND	ND	ND	ND	ND	ND	2.07	ND	NS
		01-Dec-96	ND	ND	ND	ND	ND	ND	ND	1.5	ND	NS
		01-Sep-97	ND	ND	ND	ND	ND	ND	ND	1.5 J	ND	NS
		28-Oct-98	ND	ND	ND	ND	ND	ND	ND	1.3	ND	NS
		22-Apr-99	ND	ND	ND	ND	ND	ND	ND	0.88	ND	NS
		05-Oct-99	ND	ND	ND	ND	ND	ND	ND	1.1	ND	NS
		18-Apr-00	ND	ND	ND	ND	ND	ND	ND	1.2	ND	NS
		01-Nov-00	ND	ND	ND	ND	ND	ND	ND	1.0 J	ND	ND
		10-Apr-01	ND	ND	ND	ND	ND	ND	ND	0.96 J	ND	ND
HD-12S	OU5	01-Oct-93	ND	ND	ND	ND	ND	ND	(71)	1.0	ND	NS
		01-Sep-95	ND	ND	ND	ND	ND	ND	(69.5)	1.16	ND	NS
		01-Dec-96	ND	ND	ND	ND	ND	ND	(44)	1.1	ND	NS
		01-Sep-97	ND	ND	ND	ND	ND	ND	(34)	1.1 J	ND	NS
		28-Oct-98	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		22-Apr-99	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY	DRY
		05-Oct-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		18-Apr-00	ND	ND	ND	ND	ND	ND	(22)	0.99	ND	NS
		01-Nov-00	ND	ND	ND	ND	ND	ND	(15)	1.6 J	ND	ND
		10-Apr-01	ND	ND	ND	ND	ND	ND	2.1	0.74 J	ND	ND

**Table 6-2**  
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Sample Location	Management Area	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	1,2-DCA (µg/L)	Total 1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)	MTBE (µg/L)
	<b>MCL</b>		<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>5</b>	<b>70</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>NCL</b>
HD-13S	OU5	01-Sep-90	0.3	0.2	ND	ND	ND	63	ND	(35)	ND	NS
		01-Nov-91	ND	ND	ND	ND	ND	(105)	ND	(32.9)	ND	NS
		01-Nov-92	ND	ND	ND	ND	ND	4.0	ND	(9.0)	ND	NS
		01-Oct-93	ND	0.6	0.5	ND	ND	12	ND	(6.0)	(2.0)	NS
		01-Dec-94	ND	ND	ND	ND	ND	1.0	ND	2.0	ND	NS
		01-Sep-95	ND	ND	ND	ND	ND	5.94	ND	4.66	ND	NS
		01-Dec-96	ND	ND	0.6	ND	ND	ND	ND	1.1	ND	NS
		01-Sep-97	ND	ND	ND	ND	ND	1.1	ND	ND	ND	NS
		26-Oct-98	ND	ND	ND	ND	ND	17.30 J	ND	0.28 J	1.5	NS
		22-Apr-99	ND	ND	ND	ND	ND	7.4	ND	ND	ND	NS
		05-Oct-99	ND	0.28 J	ND	ND	0.32 J	1.3	ND	0.29 J	ND	NS
		17-Apr-00	ND	ND	ND	ND	ND	4.8	ND	ND	1.5	NS
		01-Nov-00	ND	0.15 J	ND	ND	ND	4.5	ND	ND	(3.5)	ND
		11-Apr-01	ND	ND	ND	ND	ND	8.4	ND	ND	1.9	ND
MAD-MON127 (HD13D)	OU5	17-Apr-00	ND	ND	ND	ND	2.8	30.92	ND	ND	ND	NS
		01-Nov-00	ND	ND	ND	ND	3.4	26.9	ND	ND	0.47 J	ND
		11-Apr-01	ND	ND	ND	ND	3.0	26.88	ND	ND	ND	ND
HSA-4A (MW131M)	OU5	01-Nov-92	ND	ND	ND	ND	ND	3.0	ND	(260)	ND	NS
		01-Oct-93	ND	ND	ND	ND	ND	23	ND	(250)	ND	NS
		01-Dec-94	ND	ND	ND	ND	ND	(74)	ND	(35)	1.0	NS
		01-Sep-95	ND	ND	ND	ND	ND	49.2	ND	(39.1)	ND	NS
		01-Dec-96	ND	ND	ND	ND	ND	36	ND	(27)	(5.5)	NS
		01-Sep-97	ND	ND	ND	ND	ND	19	ND	(41)	(3.7)	NS
		26-Oct-98	ND	ND	ND	ND	ND	50.4 J	ND	1.2	(4.2)	NS
		21-Apr-99	ND	ND	ND	ND	ND	28.32	ND	0.84	(22)	NS
		04-Oct-99	ND	ND	ND	ND	ND	9.5	ND	0.8	(21)	NS
		17-Apr-00	ND	ND	ND	ND	ND	11	ND	(22)	(3.4)	NS
		02-Nov-00	ND	ND	ND	ND	ND	21.24 J	ND	0.24 J	(18)	ND
		02-Nov-00	ND	ND	ND	ND	ND	22.22 J	ND	0.21 J	(18)	ND
		10-Apr-01	ND	ND	ND	ND	ND	6.7	ND	ND	(12)	ND
	Duplicate											
HSA-4B (MW131S)	OU5	01-Nov-92	ND	ND	ND	ND	ND	ND	(10)	(26)	ND	NS
		01-Oct-93	ND	ND	ND	ND	ND	ND	(6.7)	(14.5)	ND	NS
		01-Dec-94	ND	ND	ND	ND	ND	ND	(8.0)	4.0	ND	NS
		01-Sep-95	ND	ND	ND	ND	ND	4.16	4.71	4.71	ND	NS
		01-Dec-96	ND	ND	ND	ND	ND	1.2	1.8	1.8	ND	NS
		01-Sep-97	ND	ND	ND	ND	ND	0.8	1.5	(31)	ND	NS
		26-Oct-98	ND	ND	ND	ND	ND	2.0	1.5	3.1	ND	NS
		21-Apr-99	ND	ND	ND	ND	ND	1.7	0.44 J	2.1	ND	NS
		05-Oct-99	ND	ND	ND	ND	ND	2.4	1.8	2.1	ND	NS
		17-Apr-00	ND	ND	ND	ND	ND	0.36 J	3.7	1.3	ND	NS
		01-Nov-00	ND	ND	ND	ND	ND	2.6	1.4	1.3 J	ND	ND
		10-Apr-01	ND	ND	ND	ND	ND	2.3	1.8	1.0 J	ND	ND
HSA-5 (MW132S)	OU5	01-Nov-92	ND	ND	ND	ND	ND	ND	(14)	(31)	ND	NS
		01-Oct-93	ND	ND	ND	ND	ND	ND	(12.1)	(20.6)	ND	NS
		01-Dec-94	ND	ND	ND	ND	ND	ND	(9.0)	(35)	ND	NS
		01-Sep-95	ND	ND	ND	ND	ND	ND	(8.68)	(34.5)	ND	NS
		01-Dec-96	ND	ND	ND	ND	ND	ND	(5.7)	(28)	ND	NS
		01-Sep-97	ND	ND	ND	ND	ND	ND	(6.5)	(33)	ND	NS
		26-Oct-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
	Duplicate	26-Oct-98	ND	ND	ND	ND	ND	0.55	(7.3)	(33)	ND	NS
		22-Apr-99	ND	ND	ND	ND	ND	0.55	(7.7)	(31)	ND	NS
		05-Oct-99	ND	ND	ND	ND	ND	1.2	(7.1)	(40)	ND	NS
	Duplicate	05-Oct-99	ND	ND	ND	ND	0.26 J	0.99	(6.4)	(35)	ND	NS
		18-Apr-00	ND	ND	ND	ND	ND	1.3	(6.0)	(36 D)	ND	NS
	Duplicate	18-Apr-00	ND	ND	ND	ND	ND	1.1 D	4.9 D	(37 D)	ND	NS
		02-Nov-00	ND	ND	ND	ND	ND	1.9	4.1	(30)	ND	ND
	Duplicate	10-Apr-01	ND	ND	ND	ND	ND	4.0	4.0	(31)	ND	ND
		10-Apr-01	ND	ND	ND	ND	ND	3.8	4.1	(31)	ND	ND

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Sample Location	Management Area	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	1,2-DCA (µg/L)	Total 1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)	MTBE (µg/L)
	<b>MCL</b>		<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>5</b>	<b>70</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>NCL</b>
TTW-02 (Deep)	OU5	19-Apr-01	ND	ND	ND	ND	ND	45 D	ND	(16 D)	ND	ND
OU8-MW-02S	OU8	14-Feb-95	ND	ND	ND	ND	ND	ND	ND	ND	(4.0)	NS
		20-Apr-98	ND	ND	ND	ND	ND	ND	ND	ND	1.1J	NS
		22-Apr-99	ND	ND	ND	ND	ND	0.29J	ND	ND	ND	NS
		25-Apr-00	Vault would not open, no samples collected.									
		11-Apr-01	ND	ND	ND	ND	ND	0.18 J	ND	ND	ND	ND
CW03-77	OU8	19-Aug-93	ND	ND	ND	ND	ND	ND	ND	2.0	ND	NS
		29-Oct-93	ND	ND	ND	ND	ND	1.0	ND	(8.0)	ND	NS
		06-Apr-94	ND	ND	ND	ND	ND	1.0	ND	(9.0)	ND	NS
		25-Aug-94	ND	ND	ND	ND	ND	ND	ND	(7.4)	ND	NS
		21-Oct-98	ND	0.21 J	ND	ND	ND	0.28 J	1.1	3.7	ND	NS
		21-Apr-99	ND	ND	ND	ND	ND	0.95	1.2	ND	ND	NS
		13-Oct-99	ND	ND	ND	ND	ND	0.95	1.7	ND	ND	NS
		25-Apr-00	ND	ND	ND	ND	ND	1.1	2.4	ND	ND	NS
		18-Oct-00	ND	0.21 J	ND	ND	ND	0.32 J	1.1	2.1	ND	ND
		16-Apr-01	ND	ND	ND	ND	ND	ND	1.1	2.4	ND	ND
P6-1	OU8	11-Aug-91	(10)	ND	8.0	44.0	ND	ND	ND	ND	ND	NS
		15-Feb-95	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		24-May-95	ND	ND	2.0	2.0	ND	ND	ND	ND	ND	NS
		23-Apr-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		20-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		26-Apr-00	ND	0.27 JR	ND	ND	ND	ND	ND	ND	ND	NS
		11-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
P6-2	OU8	11-Aug-91	(17)	ND	82	340	ND	10	ND	ND	ND	NS
		15-Feb-95	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		24-May-95	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		23-Apr-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		20-Apr-99	ND	ND	ND	ND	ND	0.39J	ND	ND	ND	NS
		15-Oct-99	ND	0.42 J	ND	ND	ND	ND	ND	ND	ND	NS
		26-Apr-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		11-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EFDZ4-MW06	OU9	12-Oct-94	2	ND	ND	ND	(14)	ND	ND	ND	ND	NS
		07-Mar-95	(5)	ND	ND	ND	ND	ND	ND	ND	ND	NS
		22-Apr-98	3.9	ND	ND	ND	ND	ND	ND	ND	ND	NS
		20-Apr-99	ND	ND	ND	ND	1.3	ND	ND	ND	ND	NS
		27-Apr-00	2.1	ND	ND	0.77 J	4.5	ND	ND	0.48 J	ND	NS
		12-Apr-01	ND	ND	ND	1.6	(12)	0.22 J	ND	0.48 J	ND	ND
EFDZ9-M575	OU9	01-Aug-93	NA	NA	NA	NA	NA	NA	NA	(7.0)	(12)	NS
		01-Nov-93	NA	NA	NA	NA	NA	NA	NA	(6.0)	(2.0)	NS
		01-Apr-94	NA	NA	NA	NA	NA	NA	NA	(5.0)	(20)	NS
		12-Oct-94	ND	ND	ND	ND	ND	13	4	(6.0)	1.0 J	NS
		13-Mar-95	ND	ND	ND	ND	ND	12	3	4.0	(9.0)	NS
		20-Apr-98	ND	ND	ND	ND	ND	25	2.3	4.6	(11)	NS
		20-Apr-99	ND	ND	ND	ND	ND	17.27	2.1	3.5	(8.7)	NS
		20-Apr-99	ND	ND	ND	ND	ND	17.27	2.3	3.9	(8.6)	NS
		27-Apr-00	ND	ND	ND	ND	ND	19.36 J	4.2	4.7	(13)	NS
		12-Apr-01	ND	ND	ND	ND	ND	6.7	2.8	2.3	1.6	ND
CHP4-MW01	OU10 (CHP4)	05-Dec-95	ND	ND	ND	ND	ND	ND	(5.0)	(8.0)	ND	NS
		22-Apr-98	ND	ND	ND	ND	ND	ND	4.7	4.5	ND	NS
		16-Oct-98	ND	ND	ND	ND	ND	ND	2.5	2.1	ND	NS
		15-Apr-99	ND	ND	ND	ND	ND	ND	1.9	1.4	ND	NS
		06-Oct-99	ND	ND	ND	ND	ND	ND	3.6	2.1	ND	NS
		18-Apr-00	ND	ND	ND	ND	ND	ND	2.1	0.65	ND	NS
		17-Oct-00	ND	0.29 J	ND	ND	ND	ND	2.3	1.1 J	ND	ND
		10-Apr-01	ND	ND	ND	ND	ND	ND	(11)	1.8 J	ND	ND

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	MCL		5	1,000	700	10,000	5	70	5	5	2	NCL
23-578-M	OU10 (CHP4)	01-Nov-93	ND	ND	ND	ND	ND	ND	2.0	(52)	ND	NS
		14-Apr-94	ND	ND	ND	ND	ND	ND	1.0	(28)	ND	NS
		01-Sep-94	ND	ND	ND	ND	ND	ND	2.0	(43)	ND	NS
		29-Oct-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
	Duplicate	20-Apr-99	ND	0.32 J	ND	ND	ND	ND	1.8	(14)	ND	NS
		20-Apr-99	ND	ND	ND	ND	ND	ND	1.3	(10)	ND	NS
		06-Oct-99	ND	ND	ND	ND	ND	0.3 J	(7.5)	(39)	ND	NS
		18-Apr-00	ND	0.28 J	ND	ND	ND	ND	2.0	(11)	ND	NS
		17-Oct-00	ND	0.31 J	ND	ND	ND	ND	2.3	(14)	ND	ND
		10-Apr-01	ND	ND	ND	ND	ND	ND	3.8	(15)	ND	ND
GR-330	OU10 (CHP4)	01-Sep-93	ND	ND	ND	ND	ND	ND	(20)	ND	ND	NS
		03-Nov-93	ND	ND	ND	ND	ND	ND	(13)	ND	ND	NS
		07-Apr-94	ND	ND	ND	ND	ND	ND	(22)	ND	ND	NS
		30-Aug-94	ND	ND	ND	ND	ND	ND	(37)	ND	ND	NS
		07-Dec-95	ND	ND	ND	ND	ND	ND	(16)	ND	ND	NS
		24-Apr-98	ND	ND	ND	ND	ND	ND	(43)	ND	ND	NS
		16-Oct-98	ND	ND	ND	ND	ND	ND	(30)	ND	ND	NS
		15-Apr-99	ND	ND	ND	ND	ND	ND	(35)	ND	ND	NS
	Duplicate	15-Apr-99	ND	ND	ND	ND	ND	ND	(31)	ND	ND	NS
		06-Oct-99	ND	ND	ND	ND	ND	ND	(12)	ND	ND	NS
		24-Apr-00	ND	ND	ND	ND	ND	ND	(11)	ND	ND	NS
		20-Oct-00	ND	ND	ND	ND	ND	ND	(12)	ND	ND	ND
		11-Apr-01	ND	ND	ND	ND	ND	ND	(5.5)	ND	ND	ND
		GR-333	OU10	03-Apr-93	ND	ND	ND	ND	ND	ND	ND	(5.0)
30-Aug-93	ND			ND	ND	ND	ND	ND	ND	(6.0)	ND	NS
09-Dec-93	ND			ND	ND	ND	ND	ND	ND	(6.0)	ND	NS
13-Apr-94	ND			ND	ND	ND	ND	ND	ND	(6.0)	ND	NS
22-Apr-98	ND			ND	ND	ND	ND	ND	0.58 J	(6.1)	ND	NS
27-Oct-98	ND			ND	ND	ND	ND	ND	0.68	4.9	ND	NS
27-Apr-99	ND			ND	ND	ND	ND	ND	0.79	4.0	ND	NS
06-Oct-99	ND			ND	ND	ND	ND	ND	0.56	3.4	ND	NS
Duplicate	06-Oct-99		ND	ND	ND	ND	ND	ND	0.60	3.5	ND	NS
	25-Apr-00		ND	ND	ND	ND	ND	ND	0.75	3.5	ND	NS
Duplicate	25-Apr-00		ND	ND	ND	ND	ND	ND	0.67	3.7	ND	NS
	20-Oct-00		ND	ND	ND	ND	ND	ND	0.75 J	3.4	ND	ND
Duplicate	20-Oct-00		ND	ND	ND	ND	ND	ND	0.80 J	3.4	ND	ND
	18-Apr-01		ND	ND	ND	ND	ND	ND	0.74 J	3.3	ND	ND
Duplicate	18-Apr-01	ND	ND	ND	ND	ND	ND	0.71 J	3.2	ND	ND	
GR-334	OU10	03-Apr-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		13-Apr-94	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		30-Aug-94	ND	ND	ND	ND	ND	ND	ND	(7.0)	ND	NS
		22-Apr-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		28-Oct-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		22-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		06-Oct-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		25-Apr-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		20-Oct-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
		18-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
WP-NEA-MW37-1D	OU10	27-Aug-93	(7.0)	11.0	2.0	10.0	ND	ND	ND	ND	ND	NS
		13-Dec-93	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		23-Apr-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		16-Oct-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		14-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		08-Oct-99	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		19-Apr-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		19-Oct-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.45 J
		18-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS

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	MCL		5	1,000	700	10,000	5	70	5	5	2	NCL
OU10-MW03S	OU10	03-Oct-94	ND	ND	ND	ND	ND	ND	(11)	1.0	ND	NS
		06-Jan-95	ND	ND	ND	ND	ND	ND	(14)	1.0	ND	NS
		19-Apr-00	ND	ND	ND	ND	ND	ND	(8.6)	ND	ND	NS
		17-Oct-00	ND	0.24 J	ND	ND	ND	ND	(7.4)	ND	ND	ND
		11-Apr-01	ND	ND	ND	ND	ND	ND	(7.9)	ND	ND	ND
OU10-MW-06S	OU10	06-Oct-94	ND	ND	ND	ND	ND	ND	ND	2.0	ND	NS
		13-Jan-95	ND	ND	ND	ND	ND	ND	ND	(10)	ND	NS
		24-Apr-98	ND	ND	ND	ND	ND	ND	ND	(13)	ND	NS
		23-Oct-98	ND	ND	ND	ND	ND	ND	ND	(14)	ND	NS
		16-Apr-99	ND	ND	ND	ND	ND	ND	ND	(8.3)	ND	NS
	Duplicate	06-Oct-99	ND	ND	ND	ND	ND	ND	ND	(11)	ND	NS
		06-Oct-99	ND	ND	ND	ND	ND	ND	ND	(14)	ND	NS
	Duplicate	21-Apr-00	ND	ND	ND	ND	ND	ND	ND	(7.2)	ND	NS
		21-Apr-00	ND	ND	ND	ND	ND	ND	ND	(7.7)	ND	NS
	Duplicate	17-Oct-00	ND	0.25 J	ND	ND	ND	ND	ND	(9.7)	ND	ND
		17-Oct-00	ND	0.21 J	0.23 J	ND	ND	ND	ND	(9.5)	ND	ND
		11-Apr-01	ND	ND	ND	ND	ND	ND	ND	(8.5)	ND	ND
OU10-MW-06D	OU10	11-Apr-01	ND	ND	ND	ND	ND	ND	ND	(8.9)	ND	ND
		06-Oct-94	ND	ND	ND	ND	ND	ND	(20)	ND	ND	NS
		13-Jan-95	ND	ND	ND	ND	ND	ND	(10)	ND	ND	NS
		20-Apr-98	ND	ND	ND	ND	ND	ND	2.6	ND	ND	NS
		23-Oct-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		16-Apr-99	ND	ND	ND	ND	ND	ND	0.99	ND	ND	NS
		08-Oct-99	ND	0.8	ND	1.08 J	ND	ND	(8.8)	ND	ND	NS
		21-Apr-00	ND	ND	ND	ND	ND	ND	(6.5)	ND	ND	NS
		17-Oct-00	ND	0.20 J	ND	ND	ND	ND	(5.0)	ND	ND	ND
		11-Apr-01	ND	ND	ND	ND	ND	ND	2.6	ND	ND	ND
OU10-MW-11S	OU10	05-Oct-94	ND	ND	ND	ND	ND	ND	(10)	ND	ND	NS
		10-Jan-95	ND	ND	ND	ND	ND	ND	(11)	ND	ND	NS
		27-Apr-98	ND	ND	ND	ND	ND	ND	(12)	ND	ND	NS
		20-Oct-98	ND	ND	ND	ND	ND	ND	(12)	0.39 J	ND	NS
		21-Apr-99	ND	ND	ND	ND	ND	ND	(8.4)	ND	ND	NS
		13-Oct-99	ND	ND	ND	ND	ND	ND	(9.9)	0.39 J	ND	NS
		18-Apr-00	ND	ND	ND	ND	ND	ND	(12)	0.37 J	ND	NS
		18-Oct-00	0.10 J	0.21 J	ND	ND	ND	ND	(9.4)	0.24 J	ND	ND
		16-Apr-01	ND	ND	ND	ND	ND	ND	(9.7)	ND	ND	ND
OU10-MW-11D	OU10	05-Oct-94	ND	ND	ND	ND	ND	ND	ND	(6.0)	ND	NS
		10-Jan-95	ND	ND	ND	ND	ND	ND	ND	(7.0)	ND	NS
		23-Apr-98	ND	ND	ND	ND	ND	ND	0.65 J	3.0	ND	NS
		20-Oct-98	ND	ND	ND	ND	ND	ND	0.92	(10)	ND	NS
		16-Apr-99	ND	ND	ND	ND	ND	ND	0.64	(6.2)	ND	NS
		06-Oct-99	ND	ND	ND	ND	ND	ND	1.9	(9.2)	ND	NS
		18-Apr-00	ND	ND	ND	ND	ND	ND	1.2	3.4	ND	NS
		18-Oct-00	ND	0.21 J	ND	ND	ND	ND	0.70 J	2.4	ND	ND
		16-Apr-01	ND	ND	ND	ND	ND	ND	0.42 J	1.9 J	ND	ND
OU10-MW-19D	OU10	06-Oct-94	ND	ND	ND	ND	ND	ND	ND	(7.0)	ND	NS
		11-Jan-95	ND	ND	ND	ND	ND	ND	ND	(6.0)	ND	NS
		24-Apr-98	ND	ND	ND	ND	ND	ND	ND	(7.1)	ND	NS
		20-Oct-98	ND	ND	ND	ND	ND	ND	ND	(5.7)	ND	NS
		19-Apr-99	ND	ND	ND	ND	ND	ND	ND	3.4	ND	NS
		06-Oct-99	ND	ND	ND	ND	ND	ND	ND	(5.4)	ND	NS
		19-Apr-00	ND	ND	ND	ND	ND	ND	ND	(5.8)	ND	NS
		20-Oct-00	ND	ND	ND	ND	ND	ND	ND	(5.1)	ND	ND
		10-Apr-01	ND	ND	ND	ND	ND	ND	ND	4.6	ND	ND

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	<b>MCL</b>		<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>5</b>	<b>70</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>NCL</b>
OU10-MW-21S	OU10	05-Oct-94	ND	ND	ND	ND	ND	ND	ND	(9.0)	ND	NS
		12-Jan-95	ND	ND	ND	ND	ND	ND	ND	(7.0)	ND	NS
		23-Apr-98	ND	ND	ND	ND	ND	ND	ND	(10)	ND	NS
		27-Oct-98	ND	ND	ND	ND	ND	ND	ND	(9.4)	ND	NS
		14-Apr-99	ND	ND	ND	ND	ND	ND	ND	(6.8)	ND	NS
		07-Oct-99	ND	ND	ND	ND	ND	ND	ND	(9.3)	ND	NS
		19-Apr-00	ND	ND	ND	ND	ND	ND	ND	(8.7)	ND	NS
		19-Oct-00	ND	ND	ND	ND	ND	ND	ND	(8.4)	ND	ND
		18-Apr-01	ND	ND	ND	ND	ND	ND	ND	(6.3)	ND	ND
OU10-MW-25S	OU10	08-Oct-94	ND	ND	ND	ND	ND	ND	(19)	ND	ND	NS
		12-Jan-95	ND	ND	ND	ND	ND	ND	(22)	ND	ND	NS
		24-Apr-98	ND	ND	ND	ND	ND	ND	(19)	ND	ND	NS
		20-Oct-98	ND	ND	ND	ND	ND	ND	(18)	ND	ND	NS
		16-Apr-99	ND	ND	ND	ND	ND	ND	(11)	ND	ND	NS
		06-Oct-99	ND	ND	ND	ND	ND	ND	(16)	ND	ND	NS
		18-Apr-00	ND	ND	ND	ND	ND	ND	(22)	ND	ND	NS
		17-Oct-00	ND	0.26 J	ND	ND	ND	ND	(19)	ND	ND	ND
		12-Apr-01	ND	ND	ND	ND	ND	ND	(19)	ND	ND	ND
SP11-MW01	FAA-B	21-Nov-95	ND	ND	ND	ND	ND	15	ND	ND	(38)	NS
		22-Apr-98	ND	ND	ND	ND	ND	14	ND	ND	(35)	NS
		20-Apr-99	0.28J	ND	ND	ND	ND	9.0	ND	ND	(25)	NS
		26-Apr-00	0.44 J	ND	ND	ND	ND	11.9	ND	ND	(42 D)	NS
		19-Apr-01	ND	ND	ND	ND	ND	9.0	ND	ND	(17)	ND
SP11-MW02	FAA-B	28-Nov-95	ND	ND	ND	ND	ND	12	ND	ND	(2)	NS
		22-Apr-98	ND	ND	ND	ND	ND	7.1	ND	0.59 J	ND	NS
		21-Apr-99	ND	ND	ND	ND	ND	4.2	ND	0.41 J	ND	NS
		28-Apr-00	ND	ND	ND	ND	ND	5.53 J	ND	0.37 J	0.63	NS
		20-Apr-01	ND	ND	ND	ND	ND	3.65 J	ND	0.34 J	0.48 J	ND
SP11-MW03	FAA-B	21-Nov-95	ND	ND	ND	ND	ND	(170)	ND	(11)	(200)	NS
		21-Apr-98	ND	ND	ND	ND	ND	35	ND	ND	(150)	NS
		20-Apr-99	ND	ND	ND	ND	0.34J	17	ND	2.5	(230)	NS
		20-Oct-99	ND	ND	ND	ND	ND	5	ND	ND	(82)	NS
		15-Dec-99	ND	ND	ND	ND	ND	36	ND	4.4	(49)	NS
		19-Apr-00	0.26 J	ND	ND	ND	ND	(108.5 D)	ND	(46 D)	(270 D)	NS
		16-Apr-01	ND	ND	ND	ND	ND	(175.2 D)	ND	(74 D)	(120 D)	ND
SP11-MW07	FAA-B Duplicate	08-Oct-99	ND	ND	ND	ND	ND	(121)	ND	(19)	(23)	NS
		08-Oct-99	ND	ND	ND	ND	ND	(120)	ND	(19.7)	(12.1)	NS
		19-Oct-99	ND	ND	ND	ND	ND	(126)	ND	(9.7)	(29)	NS
	Final Pre-inject. Final Post-inject.	22-Oct-99	ND	ND	ND	ND	ND	(170)	ND	(7.9)	(25)	NS
		15-Dec-99	ND	ND	ND	ND	ND	(437)	ND	(61.7)	5.4	NS
		23-Apr-01	ND	ND	ND	ND	ND	(596 D)	ND	(57 D)	(54 D)	ND
SP11-MW08	FAA-B Duplicate	05-Oct-99	ND	1.6	ND	ND	ND	26.1	ND	ND	(29)	NS
		21-Oct-99	ND	ND	ND	ND	ND	42.6	ND	ND	(32)	NS
		21-Oct-99	ND	ND	ND	ND	ND	43.2	ND	ND	(33)	NS
		19-Apr-00	0.37 J	ND	ND	ND	ND	31.3	ND	0.92	(28)	NS
		16-Apr-01	0.41 J	ND	ND	ND	ND	21.1	ND	ND	(11)	ND
SP11-MW09	FAA-B Duplicate	06-Oct-99	ND	ND	ND	ND	ND	67	ND	1	(48)	NS
		08-Oct-99	ND	ND	ND	ND	ND	59.1	ND	ND	(32)	NS
		08-Oct-99	ND	ND	ND	ND	ND	58.7	ND	ND	(18.9)	NS
		21-Oct-99	ND	ND	ND	ND	ND	(114)	ND	1.9	(60)	NS
		27-Oct-99	ND	ND	ND	ND	ND	(121)	ND	ND	(19)	NS
		20-Apr-01	ND	ND	ND	ND	ND	28.1	ND	4.6	(4.0)	ND
EFDZ2-MW03	FAA-B	20-Oct-94	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		01-Mar-95	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		26-Apr-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		19-Apr-01	ND	ND	ND	ND	ND	0.18 J	ND	0.40 J	ND	ND

**Table 6-2**  
**Basewide LTM April 2001 and Historic Groundwater**  
**Sampling Results: VOCs**  
**Wright-Patterson AFB, Ohio**  
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Sample Location	Management Area	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	1,2-DCA (µg/L)	Total 1,2-DCE (µg/L)	PCE (µg/L)	TCE (µg/L)	Vinyl Chloride (µg/L)	MTBE (µg/L)
	<b>MCL</b>		<b>5</b>	<b>1,000</b>	<b>700</b>	<b>10,000</b>	<b>5</b>	<b>70</b>	<b>5</b>	<b>5</b>	<b>2</b>	<b>NCL</b>
B59-MW01	B59	13-Oct-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		27-Apr-99	ND	ND	ND	ND	ND	ND	ND	0.36 J	ND	NS
		27-Apr-00	ND	ND	ND	ND	ND	ND	ND	ND	ND	NS
		11-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B59-MW02	B59 Duplicate	08-Oct-98	ND	ND	ND	ND	(7.8 J)	(190)	ND	ND	(27)	NS
		27-Apr-99	ND	ND	ND	ND	(100 D)	(221.7 D)	ND	(13)	(36)	NS
		27-Apr-99	ND	ND	ND	ND	(65)	(141.3 J)	ND	(12)	(30)	NS
		27-Apr-00	ND	ND	ND	ND	3.0 JD	(200 D)	ND	(52 D)	(10 JD)	NS
		11-Apr-01	ND	ND	ND	ND	3.6 JD	(111.9 JD)	ND	(43 D)	(14 D)	ND
B59-MW03	B59 Duplicate	08-Oct-98	2.4	ND	ND	ND	ND	(170)	ND	(19)	(18)	NS
		08-Oct-98	2.2	ND	ND	ND	ND	(160)	ND	(18)	(16)	NS
		27-Apr-99	(8.2 J)	ND	ND	ND	(13)	(406)	ND	(510)	(69)	NS
		27-Apr-00	1.4 JD	ND	ND	ND	2.9 JD	(190 D)	ND	(180 D)	(11 JD)	NS
		11-Apr-01	ND	ND	ND	ND	ND	(333 D)	ND	(150 D)	(39 D)	ND
B59-MW04	B59	08-Oct-98	1.1	ND	0.16 J	0.35 J	ND	36	ND	(7.9)	(17)	NS
		27-Apr-99	ND	0.32 J	ND	ND	ND	5.2	ND	4.3	1.1	NS
		27-Apr-00	0.14 J	ND	ND	ND	ND	8.8	ND	3.3	(2.5)	NS
		11-Apr-01	Not sampled, wellhead damaged.									
HD-13S-AMB-01 (ambient blank)	OU5	11-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

1,2-DCA - 1,2-Dichloroethane  
TCE - Trichloroethylene  
PCE - Tetrachloroethylene  
1,2-DCE - 1,2-Dichloroethene (Total)  
MTBE - Methyl tert-butyl ether

MCLs - Maximum Contaminant Levels.  
NCL - No compliance level set  
ND - Concentration is below detection limits.  
NS - Not Sampled  
µg/L - Micrograms per liter

( ) - Concentration exceeds MCL.  
R - Surrogate recovery was outside stated control limits.  
J - Estimated Result. Concentration less than reporting limit but above detection limit.  
D - Result obtained from the analysis of a dilution

**Table 6-3**  
**Basewide LTM April 2001 Groundwater Sampling Results: Dissolved Metals**  
**(COCs Only)**  
**Wright-Patterson AFB, Ohio**

Aquifer Type/ Sample Location	Area	Dissolved Metals (mg/L)													
		Aluminum	Antimony	Arsenic	Barium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Potassium	Thallium	Vanadium	Zinc
	<b>MCL</b>	--	6	50	2000	100	--	1300	15	--	100	--	2	--	--
<b>Layer 1 - Hill</b>	<b>RG</b>	<b>12000</b>	<b>40</b>	<b>50</b>	<b>2000</b>	<b>309</b>	<b>13</b>	<b>1300</b>	<b>20</b>	<b>707</b>	<b>119</b>	<b>--</b>	<b>2</b>	<b>30</b>	<b>115</b>
EFDZ3-MW02	OU9	ND	ND	ND	ND	ND	ND	ND	ND	36	ND	ND	ND	ND	ND
EFDZ3-MW03	OU9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EFDZ8-MW01	OU9	200	ND	ND	ND	21	ND	ND	ND	25	(190)	25800	ND	ND	ND
EFDZ10-MW02 (P4-2)	OU9	ND	ND	ND	ND	ND	ND	ND	ND	26	ND	ND	ND	ND	ND
<b>Layer 1 - Outwash</b>	<b>RG</b>	<b>19900</b>	<b>32.2</b>	<b>50</b>	<b>2000</b>	<b>100</b>	<b>24.8</b>	<b>1300</b>	<b>55.5</b>	<b>1640</b>	<b>137</b>	<b>--</b>	<b>3.1</b>	<b>56</b>	<b>271</b>
14-554-M	OU2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NEA-MW01-1S	OU2	ND	ND	ND	ND	ND	ND	ND	ND	32	140	5400	ND	ND	ND
NEA-MW02-2S	OU2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NEA-MW20-2S	OU2	ND	ND	20	620	ND	ND	ND	ND	320	ND	ND	ND	ND	ND
NEA-MW20-2S (Dup)	OU2	ND	ND	22	670	ND	ND	ND	ND	330	ND	ND	ND	ND	ND
NEA-MW23-2S	OU2	ND	ND	ND	290	ND	ND	ND	ND	370	ND	ND	ND	ND	ND
NEA-MW24-2S	OU2	ND	ND	ND	ND	92	ND	ND	ND	ND	ND	8700	ND	ND	ND
NEA-MW31-3S	OU2	ND	ND	ND	ND	17	ND	ND	ND	19	93	24000	ND	ND	ND
07-520-M	OU3	ND	ND	ND	400	ND	ND	ND	ND	460	ND	6000	ND	ND	ND
25-582-M	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6100	ND	ND	ND
25-582-M (Dup)	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5900	ND	ND	75
25-583-M	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5700	ND	ND	ND
25-584-M	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6200	ND	ND	ND
OU10-MW03S	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Layer 2 - Outwash</b>	<b>RG</b>	<b>960</b>	<b>36.9</b>	<b>50</b>	<b>2000</b>	<b>100</b>	<b>50</b>	<b>1300</b>	<b>15</b>	<b>134</b>	<b>100</b>	<b>--</b>	<b>2.6</b>	<b>4.2</b>	<b>10.7</b>
CW15-055	OU5	Metals sample not collected.													
HD-11	OU5	Dissolved metals sample not collected.													
OU8-MW-02D	OU8	290	ND	ND	ND	ND	ND	ND	ND	(170)	ND	19700	ND	ND	ND
OU8-MW-23D	OU8	ND	ND	ND	ND	ND	ND	ND	ND	130	ND	ND	ND	ND	ND
OU10-MW06S	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OU10-MW06S (Dup)	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OU10-MW10I	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8400	ND	ND	ND

COCs = Chemicals of concern  
MCL = Maximum Contaminant Level  
RG = Remediation goal (Final Engineering Evaluation/Cost Analysis, 1998)  
( ) = Concentration exceeds RG and MCL

**Table 6-4**  
**OU5 and OU8 April 2001 and Historic LTM**  
**Groundwater Sampling Results: Total Metals**  
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Sample Location	Area	Date Sampled	Aluminum (ug/L)	Manganese (ug/L)	Vanadium (ug/L)	Zinc (ug/L)
<b>RG</b>	<b>Layer 2</b>	<b>(Outwash)</b>	<b>960</b>	<b>134</b>	<b>4.2</b>	<b>10.7</b>
CW15-055	OU5	13-Oct-93	ND	(298)	(9.4 )	4.5
		23-Feb-94	70.5	(322)	ND	(13.5 )
		15-Apr-98	ND	(290)	ND	ND
		Duplicate	ND	(310)	ND	ND
		27-Apr-99	440	(370)	ND	ND
		27-Apr-00	(1600)	(370)	ND	ND
		19-Apr-01	Metals sample not collected.			
HD-11	OU5	10-Apr-01	360	100	ND	ND L
OU8-MW-02D	OU8	14-Feb-95	(11600)	(919)	(21.3 )	(76.3 )
		23-May-95	(4370)	(406)	(11.1 )	(29.8)
		14-Apr-98	(2900)	(320)	ND	(83)
		22-Apr-99	(6900)	(460)	ND	(67)
		25-Apr-00	(11000)	(330)	ND	(58)
		11-Apr-01	470	(190)	ND	ND
OU8-MW-23D	OU8	16-Feb-95	553	(213)	2.7	(26.3)
		24-May-95	(1200)	(183)	ND	ND
		15-Apr-98	ND	(140)	ND	ND
		27-Apr-99	ND	100	ND	ND
		26-Apr-00	540	120	ND	ND
		12-Apr-01	ND	130	ND	ND

RG = Remediation goal (IT, 1998)

ND = Not detected

L = Serial dilution of a digestate in analytical batch indicates physical and chemical interferences are present.

( ) = Concentration exceeds RG

**Table 6-5**  
**OU9 April 2001 and Historic LTM**  
**Groundwater Sampling Results: Total Metals**  
**Wright-Patterson AFB, Ohio**

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Sample Location	Management Area	Date Sampled	Aluminum (ug/L)	Chromium (Total) (ug/L)	Cobalt (ug/L)	Manganese (ug/L)	Nickel (ug/L)	Selenium (ug/L)	Thallium (ug/L)	Vanadium (ug/L)	Zinc (ug/L)
<b>RG</b>	<b>Layer 1</b>	<b>(Hill)</b>	<b>12000</b>	<b>309</b>	<b>13</b>	<b>707</b>	<b>119</b>	<b>50</b>	<b>2</b>	<b>30</b>	<b>115</b>
EFDZ3-MW02	OU9	17-Oct-94	2120	10.4	ND	133	ND	ND	ND	ND	ND
		02-Mar-95	ND	22.6 J	ND	63.1	23.9	(588 )	(222 )	(73.9)	24.7
		17-Jun-96	53.8	ND	ND	76.2	23	ND	(4.6)	15.1	12.6
		16-Apr-98	210	ND	ND	61	ND	ND	ND	ND	ND
		26-Apr-99	330	ND	ND	35	ND	ND	ND	ND	ND
		27-Apr-00	3700	74	ND	79	ND	ND	ND	ND	ND
		12-Apr-01	ND	15	ND	42	ND	ND	ND	ND	ND
EFDZ3-MW03	OU9	14-Oct-94	(12500)	28.3	(15.8)	(1660 )	28.4	ND	ND	(33.8 )	(142)
		03-Mar-95	428	ND	ND	69.7	ND	ND	ND	ND	22.4
		17-Jun-96	60.8	3.6	ND	12.8	ND	ND	(4.8)	24.9	15
		17-Apr-98	220	ND	ND	35	ND	ND	ND	ND	ND
		21-Apr-99	400	ND	ND	35	ND	ND	ND	ND	ND
		27-Apr-00	530	ND	ND	160	ND	ND	ND	ND	ND
		19-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	ND
EFDZ8-MW01	OU9	19-Oct-94	(17900)	66.4	(17.8)	554	82.1	ND	ND	28.5	ND
		09-Mar-95	7520 J	112	ND	199	(177)	ND	ND	ND	(140)
		14-Apr-98	4400	15	ND	89	48	ND	ND	ND	50
		26-Apr-99	1800	19	ND	46	(140)	ND	ND	ND	ND
		27-Apr-00	6200	150	ND	89	(190)	ND	ND	ND	ND
		19-Apr-01	560	43	ND	41	(280)	ND	ND	ND	ND
EFDZ10-MW02 (P4-2)	OU9	19-Oct-94	(23800)	(6810)	(99.2)	(3370)	(686 )	6.8	ND	(80.5)	ND
		15-Mar-95	1170	(728 )	ND	95	108	6.3	ND	ND	ND
		13-Jun-96	53.2	9.6	ND	5.9	14.9	ND	(3.4 )	16.6	16.5
		17-Apr-98	2400	300	ND	84	ND	ND	ND	ND	ND
		26-Apr-99	410	100	ND	41	ND	ND	ND	ND	ND
		27-Apr-00	2000	140	ND	58	ND	ND	ND	ND	ND
		19-Apr-01	1400	120	ND	52	ND	ND	ND	ND	ND

ND = Not detected  
J = Estimated value  
RG = Remediation goal (IT, 1998)  
( ) = Concentration exceeds RG

**Table 6-6**  
**OU10 April 2001 and Historic LTM**  
**Groundwater Sampling Results: Total Metals**  
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Sample Location	Area	Date Sampled	Aluminum (ug/L)	Chromium (Total) (ug/L)	Cobalt (ug/L)	Lead (ug/L)	Manganese (ug/L)	Nickel (ug/L)	Vanadium (ug/L)	Zinc (ug/L)
<b>RG</b>	<b>Layer 1</b>	<b>(Outwash)</b>	<b>19900</b>	<b>100</b>	<b>24.8</b>	<b>55.5</b>	<b>1640</b>	<b>137</b>	<b>56</b>	<b>271</b>
25-582-M	OU10	06-Oct-94	(26700)	(6170)	(234)	(75.7)	(3590)	(4790)	(117)	(420)
		10-Jan-95	6620	(145)	(88.7)	20.3	(2000)	(1230)	18.7	88.9
		15-Apr-98	ND	ND	ND	ND	ND	ND	ND	ND
		23-Apr-99	ND	ND	ND	ND	ND	ND	ND	ND
		21-Apr-00	ND	ND	ND	ND	ND	ND	ND	ND
		12-Apr-01	ND	12	ND	ND	ND	ND	ND	ND
		Duplicate	ND	ND	ND	ND	ND	ND	ND	51
25-583-M	OU10	06-Oct-94	4690	(2990)	(101)	27.6	1290	(1610)	30.5	101
		11-Jan-95	1130	(178)	12.4	3.8	257	(272)	6.1	23.6
		13-Jun-96	30.2	8	ND	ND	3.4	9.9	23	22
		14-Apr-98	ND	25	ND	ND	ND	ND	ND	ND
		23-Apr-99	ND	20	ND	ND	ND	ND	ND	ND
		Duplicate	ND	28	ND	ND	ND	ND	ND	ND
		21-Apr-00	ND	21	ND	ND	ND	ND	ND	ND
		12-Apr-01	ND	38	ND	ND	ND	ND	ND	ND
25-584-M	OU10	06-Oct-94	2920	(2140)	(29.5)	18	696	(426)	25	(706)
		11-Jan-95	379	(121)	ND	ND	65	31	2.5	8.1
		13-Jun-96	30.6	11.1	ND	ND	3.4	ND	17.2	24
		14-Apr-98	ND	11	ND	ND	ND	ND	ND	ND
		23-Apr-99	ND	40	ND	ND	22	ND	ND	ND
		21-Apr-00	ND	13	ND	ND	ND	ND	ND	ND
		12-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND
OU10-MW03S	OU10	24-Apr-00	210	ND	ND	ND	ND	ND	ND	ND
		11-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND
<b>RG</b>	<b>Layer 2</b>	<b>(Outwash)</b>	<b>960</b>	<b>100</b>	<b>50</b>	<b>15</b>	<b>134</b>	<b>100</b>	<b>4.2</b>	<b>10.7</b>
OU10-MW10I	OU10	24-Apr-00	220	ND	ND	ND	ND	ND	ND	ND
		12-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND
OU10-MW06S	OU10	06-Oct-94	445	ND	ND	2.8	76.1	ND	3	ND
		13-Jan-95	(3740)	5.9	4.1	4.3	(226)	10.3	(9.3)	ND
		24-Apr-98	250	ND	ND	ND	24	ND	ND	ND
		16-Apr-99	ND	ND	ND	ND	20	ND	ND	ND
		21-Apr-00	ND	ND	ND	ND	31	ND	ND	ND
		11-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND
		Duplicate	ND	ND	ND	ND	ND	ND	ND	ND

ND = Not detected  
RG = Remediation goal (IT, 1998)  
( ) = Concentration exceeds RG

**Table 6-7**  
**OU2 and OU3 April 2001 and Historic LTM Groundwater Sampling Results: Total Metals**  
**Wright-Patterson AFB, Ohio**  
**Page 1 of 2**

WPAFB  
Final  
LTM Report: April 2001  
Chapter 6  
March 2002

Sample Location	Date Sampled	Aluminum (ug/L)	Antimony (ug/L)	Arsenic (ug/L)	Barium (ug/L)	Chromium (Total) (ug/L)	Cobalt (ug/L)	Lead (ug/L)	Manganese (ug/L)	Nickel (ug/L)	Thallium (ug/L)	Vanadium (ug/L)	Zinc (ug/L)
<b>RG</b>	<b>Layer 1 Outwash</b>	<b>19900</b>	<b>32.2</b>	<b>50</b>	<b>2000</b>	<b>100</b>	<b>24.8</b>	<b>55.5</b>	<b>1640</b>	<b>137</b>	<b>3.1</b>	<b>56</b>	<b>271</b>
14-554-M	03-Dec-92	ND	ND	ND	123	ND	ND	ND	ND	23.6	ND	ND	ND
	05-May-93	1940	(52.1)	1.3	139	(1050)	13.4	2.4	155	(488)	ND	9.8	ND
	15-Apr-98	ND	ND	ND	ND	38	ND	ND	ND	ND	ND	ND	ND
	26-Apr-99	ND	ND	ND	ND	(140)	ND	ND	22	ND	ND	ND	ND
	24-Apr-00	ND	ND	ND	ND	83	ND	ND	20	ND	ND	ND	ND
	18-Apr-01	ND	ND	ND	ND	20	ND	ND	ND	ND	ND	ND	ND
NEA-MW01-1S	18-Nov-92	8850	ND	6.8	230	71	18.6	20	988	104	ND	25	151
	27-Apr-93	(20100)	ND	19.9	356	(112)	(38.3)	31.8	(1970)	(195)	1.8	(60.1)	270
	26-Aug-93	ND	ND	ND	131	ND	ND	ND	18.8	50.1	ND	ND	ND
	14-Jun-96	216	ND	ND	110	63.1	ND	ND	57.2	132	(3.3)	22.2	17.3
	14-Apr-98	310	ND	ND	ND	18	ND	ND	35	66	ND	ND	ND
	22-Apr-99	240	ND	ND	ND	(290)	ND	ND	120	(170)	ND	ND	ND
	20-Apr-00	ND	ND	ND	ND	97	ND	ND	88	130	ND	ND	ND
	18-Apr-01	ND	ND	ND	ND	11	ND	ND	25	47	ND	ND	ND
NEA-MW02-2S	19-Nov-92	3780	ND	3	144	12.4	ND	7.1	323	17.4	(9.6)	9.6	60.5
	22-Apr-93	(50500)	ND	7.8	521	(131)	(59.2)	(149)	(4870)	(278)	(117)	(117)	(504)
	28-Aug-93	831	ND	ND	127	ND	ND	ND	24.9	ND	(4)	4	39.4
	14-Jun-96	105	ND	ND	55.7	6.4 B	ND	ND	12.4	9.6	ND	19.3	15.7
	14-Apr-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Duplicate	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	140
	22-Apr-99	610	ND	ND	ND	15	ND	ND	63	ND	ND	ND	ND
	20-Apr-00	710	ND	ND	ND	12	ND	ND	90	ND	ND	ND	ND
	18-Apr-01	ND	ND	ND	ND	ND	ND	ND	23	ND	ND	ND	ND
NEA-MW20-2S	16-Dec-92	48.3	ND	15.3	933	ND	ND	ND	309	ND	ND	5	261
	05-May-93	(21700)	ND	21.2	1350	49.6	(30.8)	41.3	(4670)	103	(59.5)	(59.5)	ND
	08-Sep-93	ND	28	12.4	1120	ND	ND	ND	513	ND	ND	4	ND
	17-Apr-98	ND	ND	22	720	ND	ND	ND	280	ND	ND	ND	ND
	26-Apr-99	ND	ND	18	700	ND	ND	ND	420	ND	ND	ND	ND
	20-Apr-00	ND	ND	25	750	ND	ND	ND	360	ND	ND	ND	ND
	17-Apr-01	ND	ND	20	650	ND	ND	ND	320	ND	ND	ND	ND
	Duplicate	ND	ND	23	690	ND	ND	ND	350	ND	ND	ND	ND

**Table 6-7**  
**OU2 and OU3 April 2001 and Historic LTM Groundwater Sampling Results: Total Metals**  
**Wright-Patterson AFB, Ohio**  
**Page 2 of 2**

WPAFB  
Final  
LTM Report: April 2001  
Chapter 6  
March 2002

Sample Location	Date Sampled	Aluminum (ug/L)	Antimony (ug/L)	Arsenic (ug/L)	Barium (ug/L)	Chromium (Total) (ug/L)	Cobalt (ug/L)	Lead (ug/L)	Manganese (ug/L)	Nickel (ug/L)	Thallium (ug/L)	Vanadium (ug/L)	Zinc (ug/L)
<b>RG</b>	<b>Layer 1 Outwash</b>	<b>19900</b>	<b>32.2</b>	<b>50</b>	<b>2000</b>	<b>100</b>	<b>24.8</b>	<b>55.5</b>	<b>1640</b>	<b>137</b>	<b>3.1</b>	<b>56</b>	<b>271</b>
NEA-MW23-2S	05-Dec-92	374	ND	6	540	ND	ND	ND	444	21.1	ND	5	ND
	24-Apr-93	(47500)	ND	4.4	1390	77.6	(58.1)	(86.3)	(4640)	(189)	(137)	(137)	(729)
	01-Sep-93	716	ND	8.1	530	ND	ND	1.6	463	ND	ND	4	29.8
	16-Apr-98	ND	ND	ND	370	ND	ND	ND	470	ND	ND	ND	ND
	23-Apr-99	ND	ND	ND	360	20	ND	ND	1100	ND	ND	ND	ND
	20-Apr-00	ND	ND	ND	340	ND	ND	ND	430	ND	ND	ND	ND
	17-Apr-01	ND	ND	ND	300	ND	ND	ND	410	ND	ND	ND	ND
NEA-MW24-2S	08-Dec-92	ND	ND	2.1	113	ND	ND	ND	ND	ND	ND	5	ND
	25-Apr-93	(27700)	ND	7.8	482	(256)	(28.2)	35.8	(2600)	(202)	(68.2)	(68.2)	(332)
	01-Sep-93	ND	ND	ND	126	ND	ND	ND	ND	ND	ND	4	9.8
	14-Apr-98	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	23-Apr-99	ND	ND	ND	ND	ND	ND	ND	23	120	ND	ND	ND
	20-Apr-00	ND	ND	ND	ND	19	ND	ND	ND	42	ND	ND	ND
	17-Apr-01	200	ND	ND	ND	(740)	ND	ND	27	46	ND	ND	ND
NEA-MW31-3S	06-Dec-92	268	ND	ND	214	ND	ND	ND	18	ND	ND	ND	ND
	21-Apr-93	(21700)	ND	18.1	490	95.8	(24.9)	(65.1)	(2250)	95.7	ND	(62.1)	(288)
	26-Aug-93	ND	ND	ND	203	ND	ND	ND	ND	ND	ND	ND	ND
	16-Apr-98	ND	ND	ND	210	ND	ND	ND	ND	ND	ND	ND	ND
	22-Apr-99	ND	ND	ND	210	ND	ND	ND	ND	ND	ND	ND	ND
	20-Apr-00	ND	ND	ND	210	ND	ND	ND	76	(460)	ND	ND	ND
	18-Apr-01	ND	ND	ND	ND	ND	ND	ND	ND	71	ND	ND	ND
07-520-M (OU3)	12-Sep-88	ND	ND	ND	420	ND	ND	ND	330	ND	ND	ND	110
	08-Jul-93	ND	ND	6.5	378	ND	ND	ND	330	ND	ND	ND	ND
	17-Jan-94	ND	ND	10.8	381	ND	4.0 J	ND	330	ND	ND	ND	ND
	20-Apr-99	390	ND	54	390	ND	ND	22	360	ND	ND	ND	ND
	20-Apr-00	ND	ND	ND	380	ND	ND	ND	390	ND	ND	ND	ND
	23-Apr-01	ND	ND	ND	420	ND	ND	ND	460	ND	ND	ND	ND

ND = Not detected

B = Trace constituent found in blank

RG = Remediation goal (IT, 1998)

( ) = Concentration exceeds RG

**Table 6-8**  
**Summary of LTM April 2001 Groundwater Sampling Results: Total Metals**  
**(COCs Only)**  
**Wright-Patterson AFB, Ohio**

Aquifer Type/ Sample Location	Area	Total Metals (mg/L)													
		Aluminum	Antimony	Arsenic	Barium	Chromium	Cobalt	Copper	Lead	Manganese	Nickel	Potassium	Thallium	Vanadium	Zinc
	<b>MCL</b>	--	<b>6</b>	<b>50</b>	<b>2,000</b>	<b>100</b>	--	<b>1,300</b>	<b>15</b>	--	<b>100</b>	--	<b>2</b>	--	--
<b>Layer 1 - Hill</b>	<b>RG</b>	<b>12,000</b>	<b>40</b>	<b>50</b>	<b>2,000</b>	<b>309</b>	<b>13</b>	<b>1,300</b>	<b>20</b>	<b>707</b>	<b>119</b>	--	<b>2</b>	<b>30</b>	<b>115</b>
EFDZ3-MW02	OU9	ND	ND	ND	ND	15	ND	ND	ND	42	ND	ND	ND	ND	ND
EFDZ3-MW03	OU9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
EFDZ8-MW01	OU9	560	ND	ND	200	43	ND	ND	ND	41	(280)	29,800	ND	ND	ND
EFDZ10-MW02 (P4-2)	OU9	1,400	ND	ND	ND	120	ND	ND	ND	52	ND	ND	ND	ND	ND
<b>Layer 1 - Outwash</b>	<b>RG</b>	<b>19,900</b>	<b>32.2</b>	<b>50</b>	<b>2,000</b>	<b>100</b>	<b>24.8</b>	<b>1,300</b>	<b>55.5</b>	<b>1,640</b>	<b>137</b>	--	<b>3.1</b>	<b>56</b>	<b>271</b>
14-554-M	OU2	ND	ND	ND	ND	20	ND	ND	ND	ND	ND	ND	ND	ND	ND
NEA-MW01-1S	OU2	ND	ND	ND	ND	11	ND	ND	ND	25	47	5,300	ND	ND	ND
NEA-MW02-2S	OU2	ND	ND	ND	ND	ND	ND	ND	ND	23	ND	ND	ND	ND	ND
NEA-MW20-2S	OU2	ND	ND	20	650	ND	ND	ND	ND	320	ND	ND	ND	ND	ND
NEA-MW20-2S (Dup)	OU2	ND	ND	23	690	ND	ND	ND	ND	350	ND	ND	ND	ND	ND
NEA-MW23-2S	OU2	ND	ND	ND	300	ND	ND	ND	ND	410	ND	ND	ND	ND	ND
NEA-MW24-2S	OU2	200	ND	ND	ND	(740)	ND	ND	ND	27	46	8,800	ND	ND	ND
NEA-MW31-3S	OU2	ND	ND	ND	ND	ND	ND	ND	ND	ND	71	23,500	ND	ND	ND
07-520-M	OU3	ND	ND	ND	420	ND	ND	ND	ND	460	ND	6,200	ND	ND	ND
25-582-M	OU10	ND	ND	ND	ND	12	ND	ND	ND	ND	ND	5,800	ND	ND	ND
25-582-M (Dup)	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6,200	ND	ND	51
25-583-M	OU10	ND	ND	ND	ND	38	ND	ND	ND	ND	ND	5,600	ND	ND	ND
25-584-M	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6,300	ND	ND	ND
OU10-MW03S	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
<b>Layer 2 - Outwash</b>	<b>RG</b>	<b>960</b>	<b>36.9</b>	<b>50</b>	<b>2,000</b>	<b>100</b>	<b>50</b>	<b>1,300</b>	<b>15</b>	<b>134</b>	<b>100</b>	--	<b>2.6</b>	<b>4.2</b>	<b>10.7</b>
CW15-055	OU5	Metals sample not collected.													
HD-11	OU5	360	ND	ND	ND	ND	ND	ND	ND	100	ND	ND	ND	ND	ND L
OU8-MW-02D	OU8	470	ND	ND	ND	ND	ND	ND	ND	(190)	ND	18,100	ND	ND	ND
OU8-MW-23D	OU8	ND	ND	ND	ND	ND	ND	ND	ND	130	ND	ND	ND	ND	ND
OU10-MW06S	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OU10-MW06S (Dup)	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
OU10-MW10I	OU10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8,900	ND	ND	ND

COCs = Chemicals of concern

MCL = Maximum Contaminant Level

RG = Remediation goal (IT, 1998)

( ) = Concentration exceeds RG

L - Serial dilution of a digestate in the analytical batch indicates interferences are present.

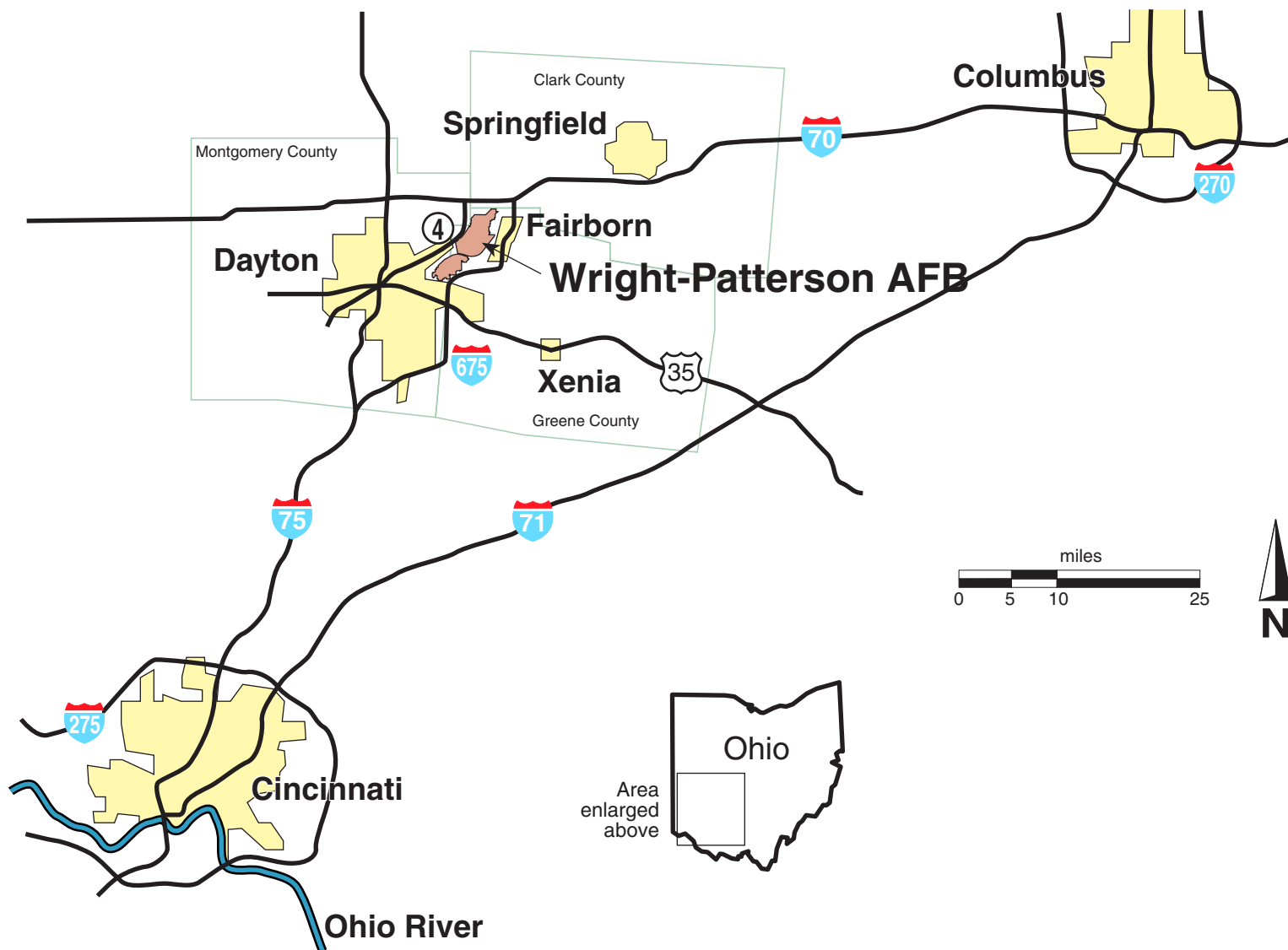


Figure 1-1. Area Location Map.

Source: ES, 1982

DRAWING BY	JIS, III	CHECKED BY	PCM	2/1/95	DRAWING NO. S-777097.0108-4/99-4w
	4/1/99	APPROVED BY	SWS	2/1/95	

DRAWING NO.	S-777097.0108-0101-1w			
	1/26/01	MWC	CHECKED BY	JIS, III
	1/26/01	JRT	APPROVED BY	7/13/99
DRAWING BY				

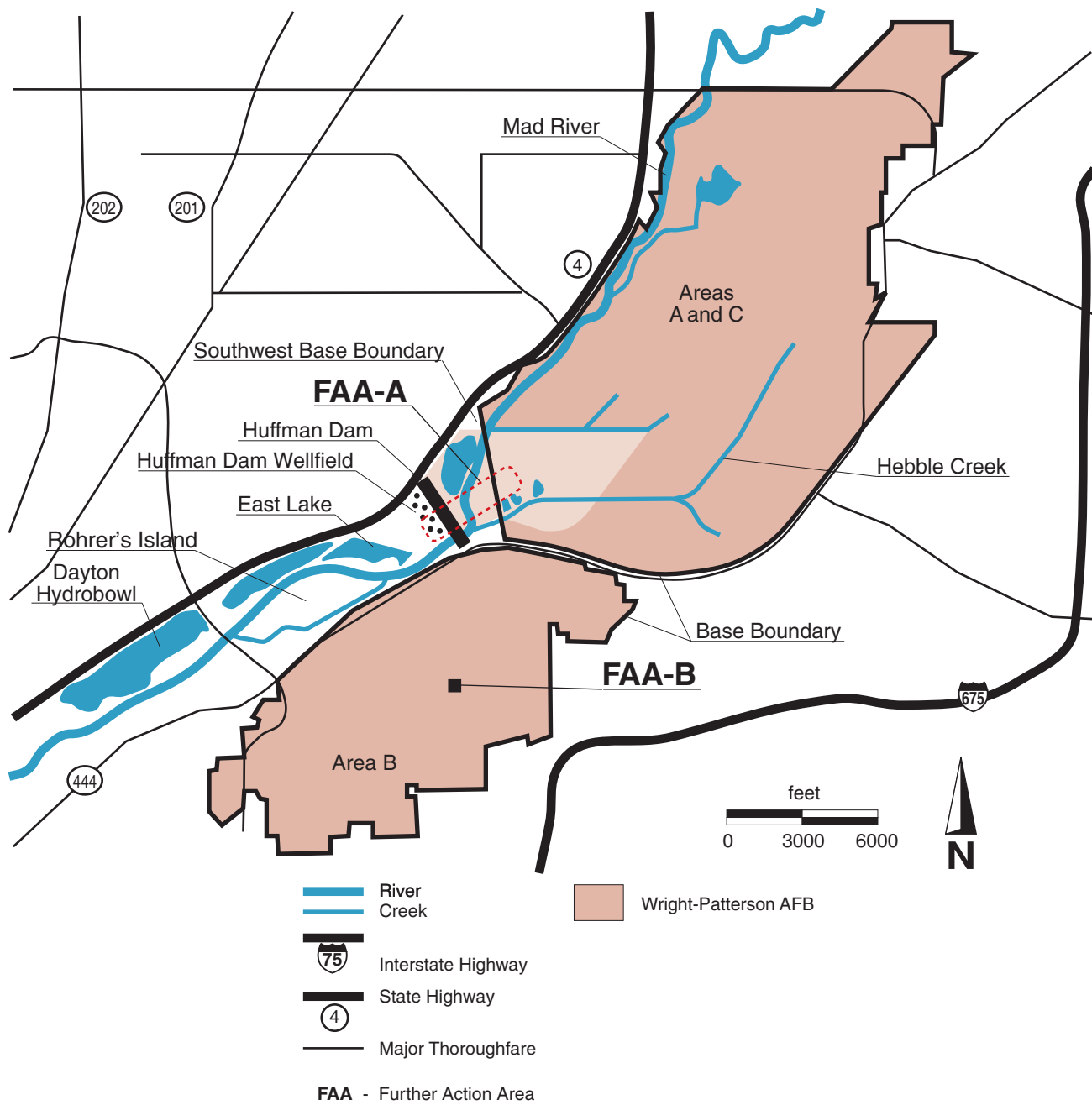


Figure 1-2. Site Location.

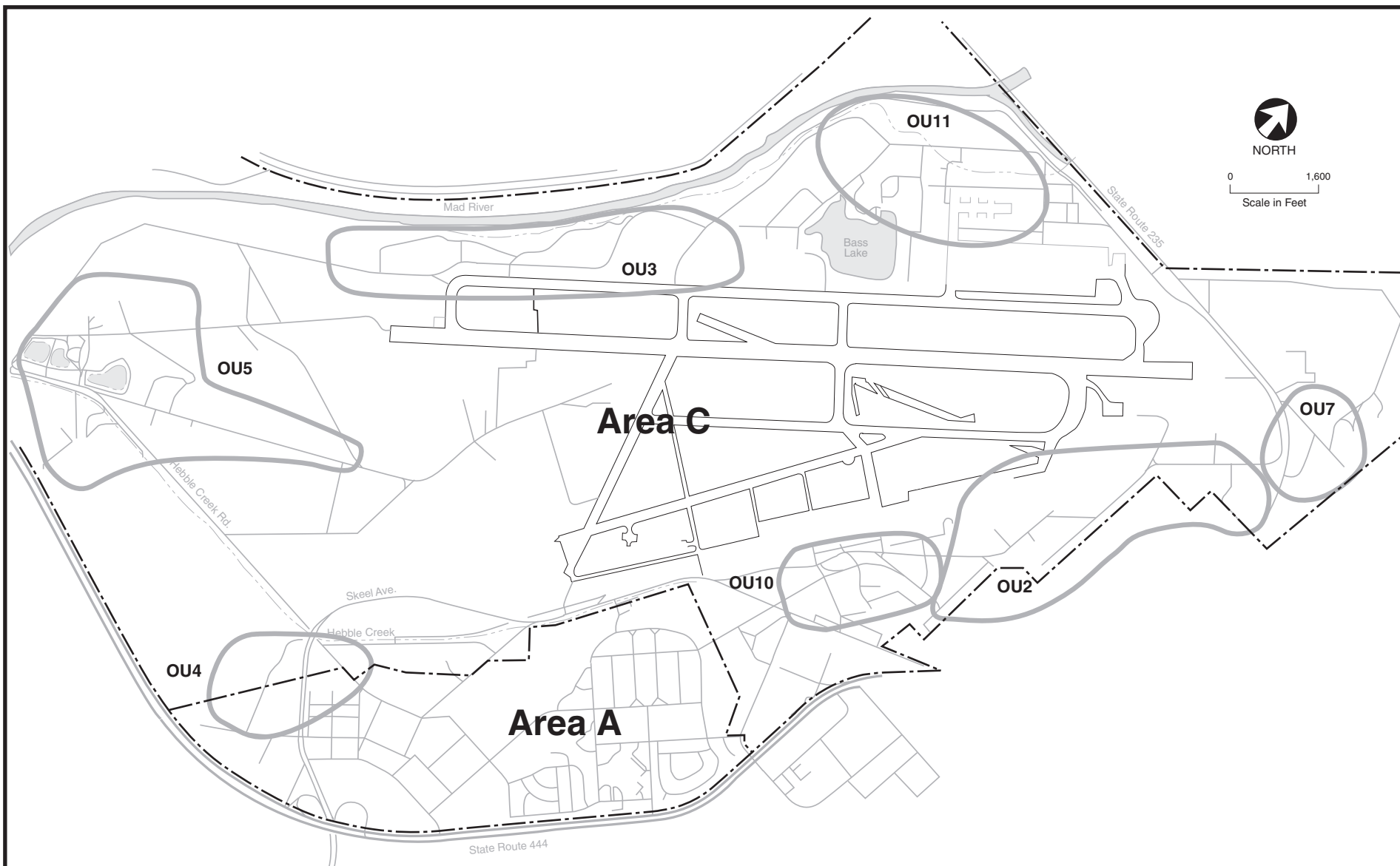


Figure 1-3. WPAFB OUs -  
Areas A and C.

Source: Map (CH2M Hill, 1994)

DRAWING BY	JIS, III 4/1/99	CHECKED BY	TAC JRT	12/15/98 1/26/01	DRAWING NO. S-777097.0108-4/99-3w
------------	--------------------	------------	------------	---------------------	--------------------------------------



NORTH

0 1,600

Scale in Feet

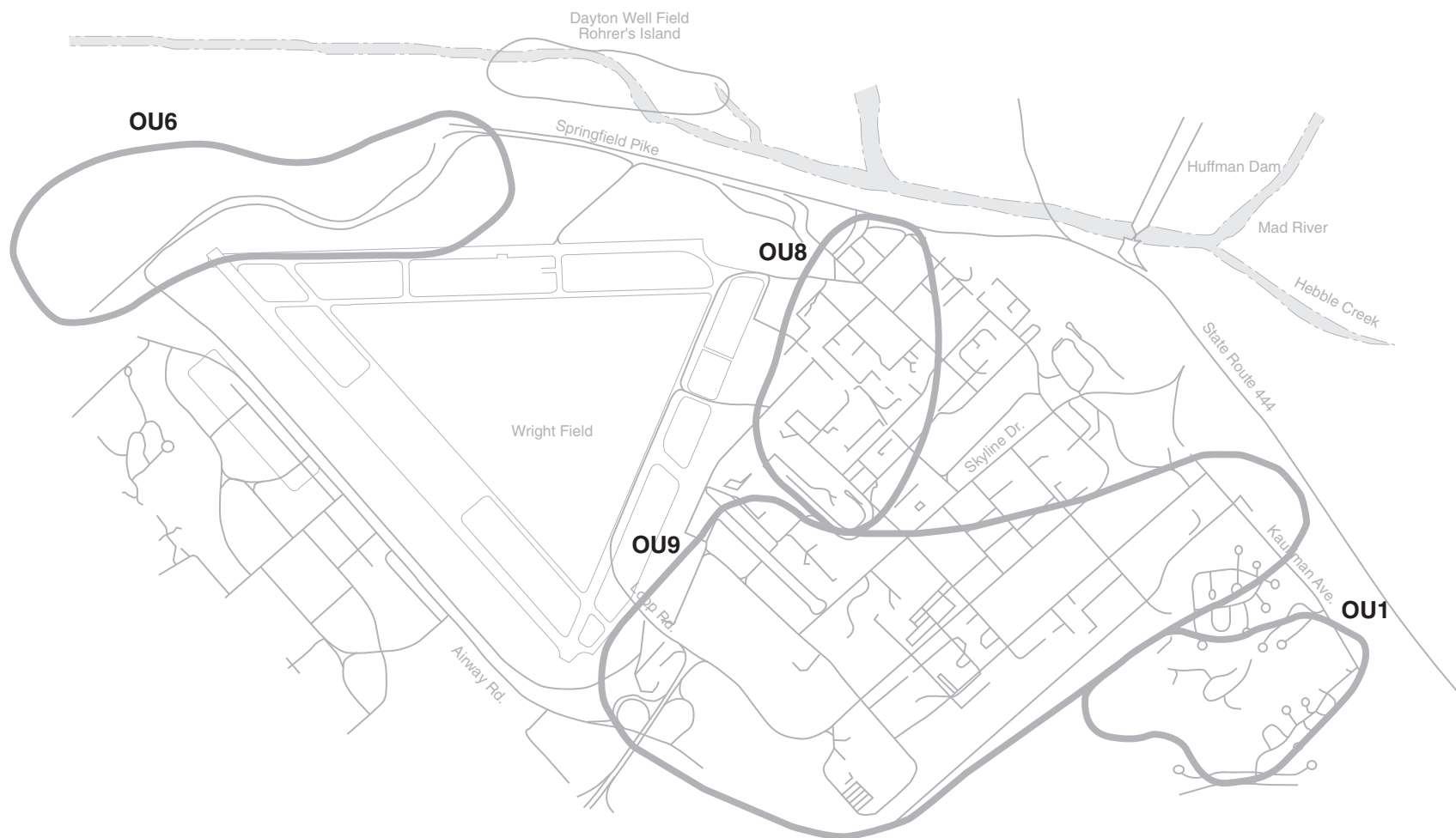
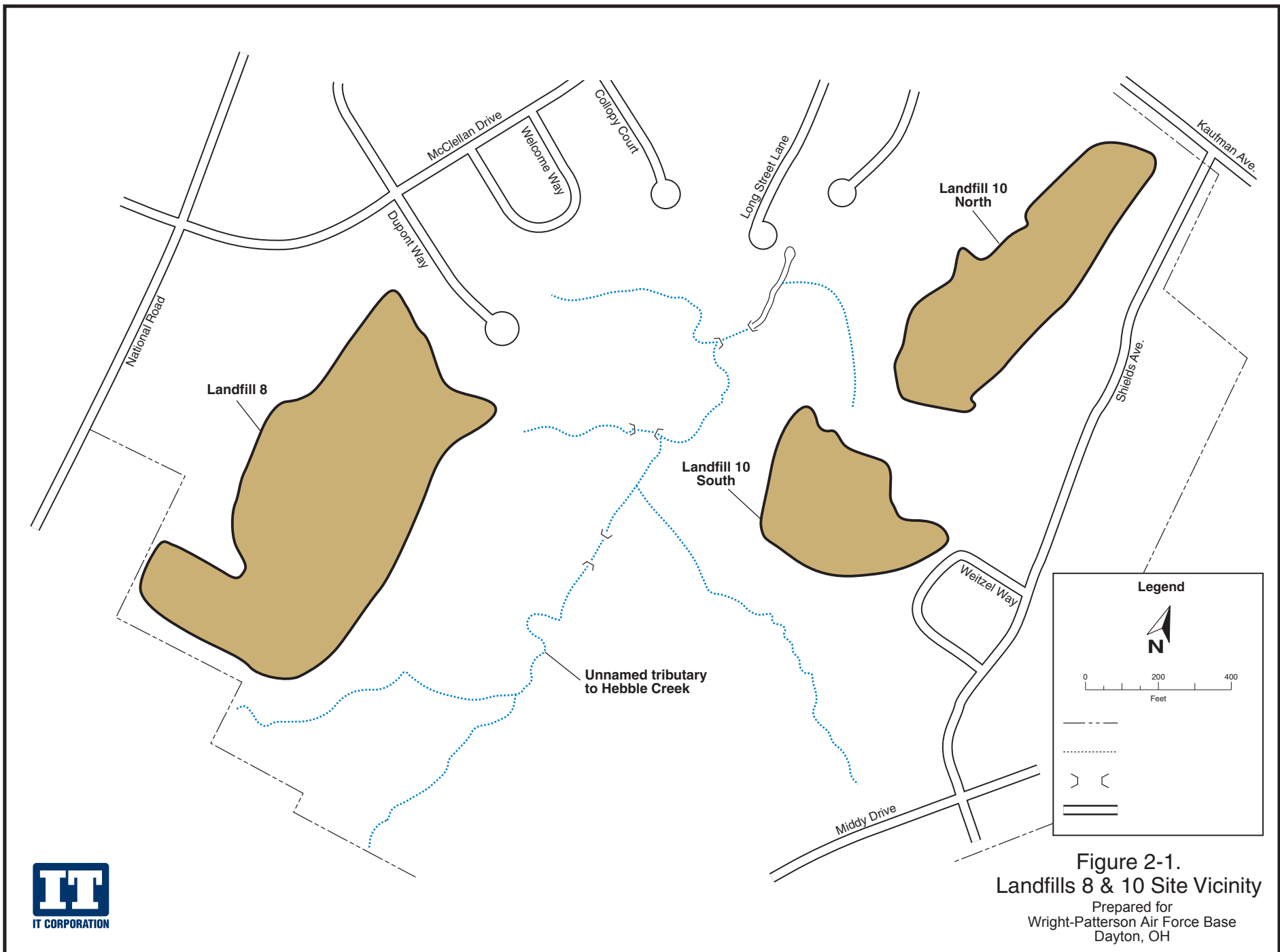


Figure 1-4. WPAFB OUs -  
Area B.

Source: Map (CH2M Hill, 1994)

DRAWING BY	JIS, III	CHECKED BY	JIS, III	4/21/95	DRAWING NO. S-777097.0108-4/99-2w
	4/1/99	APPROVED BY	SRS	4/24/95	

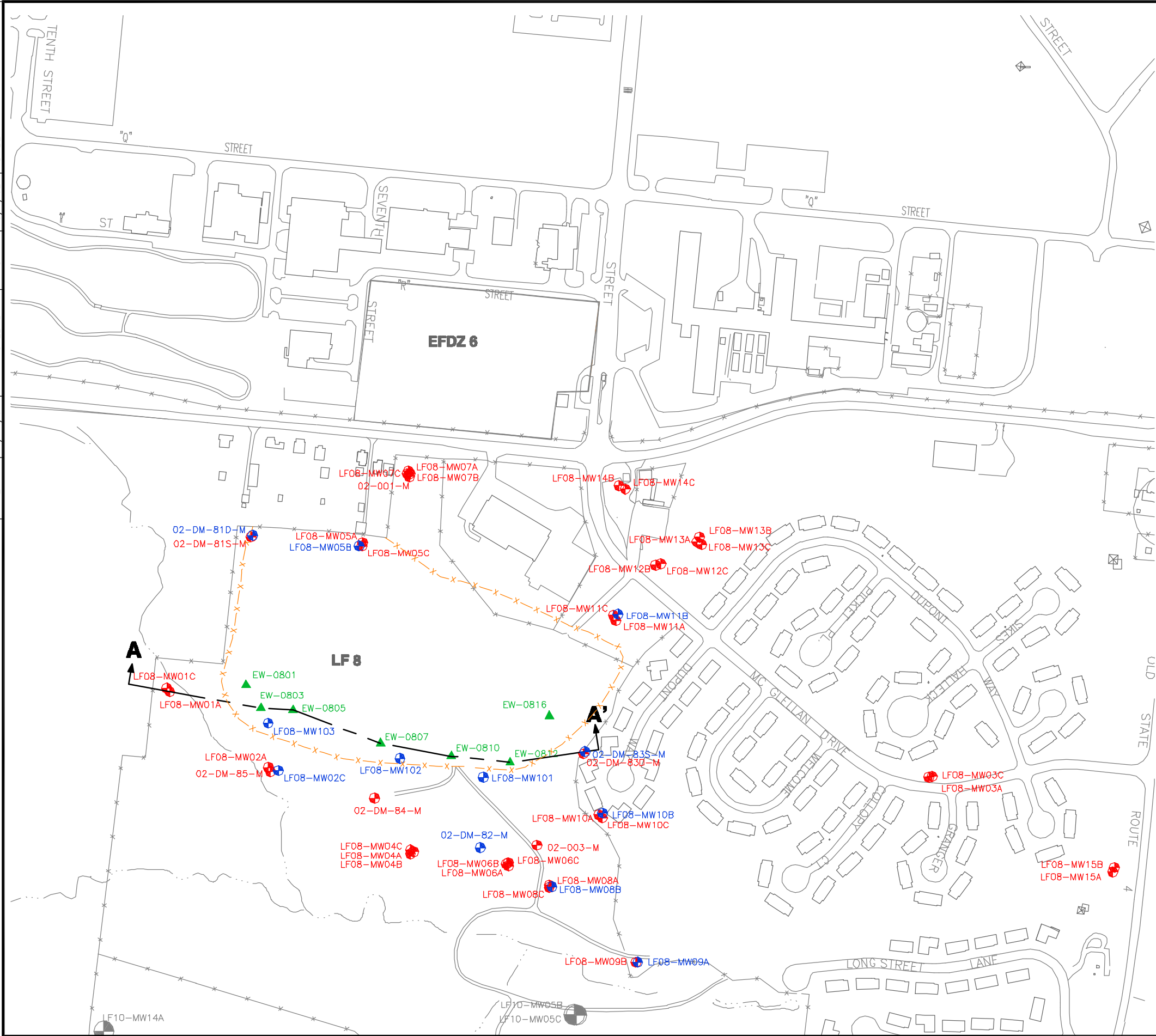


**Figure 2-1.**  
**Landfills 8 & 10 Site Vicinity**

Prepared for  
 Wright-Patterson Air Force Base  
 Dayton, OH

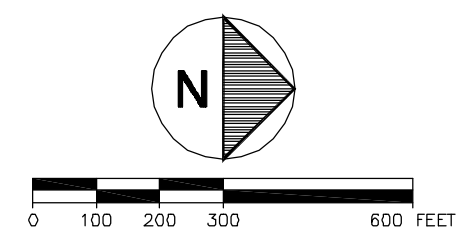


			MWC	1/26/01	
			JRT	1/26/01	



**LEGEND:**

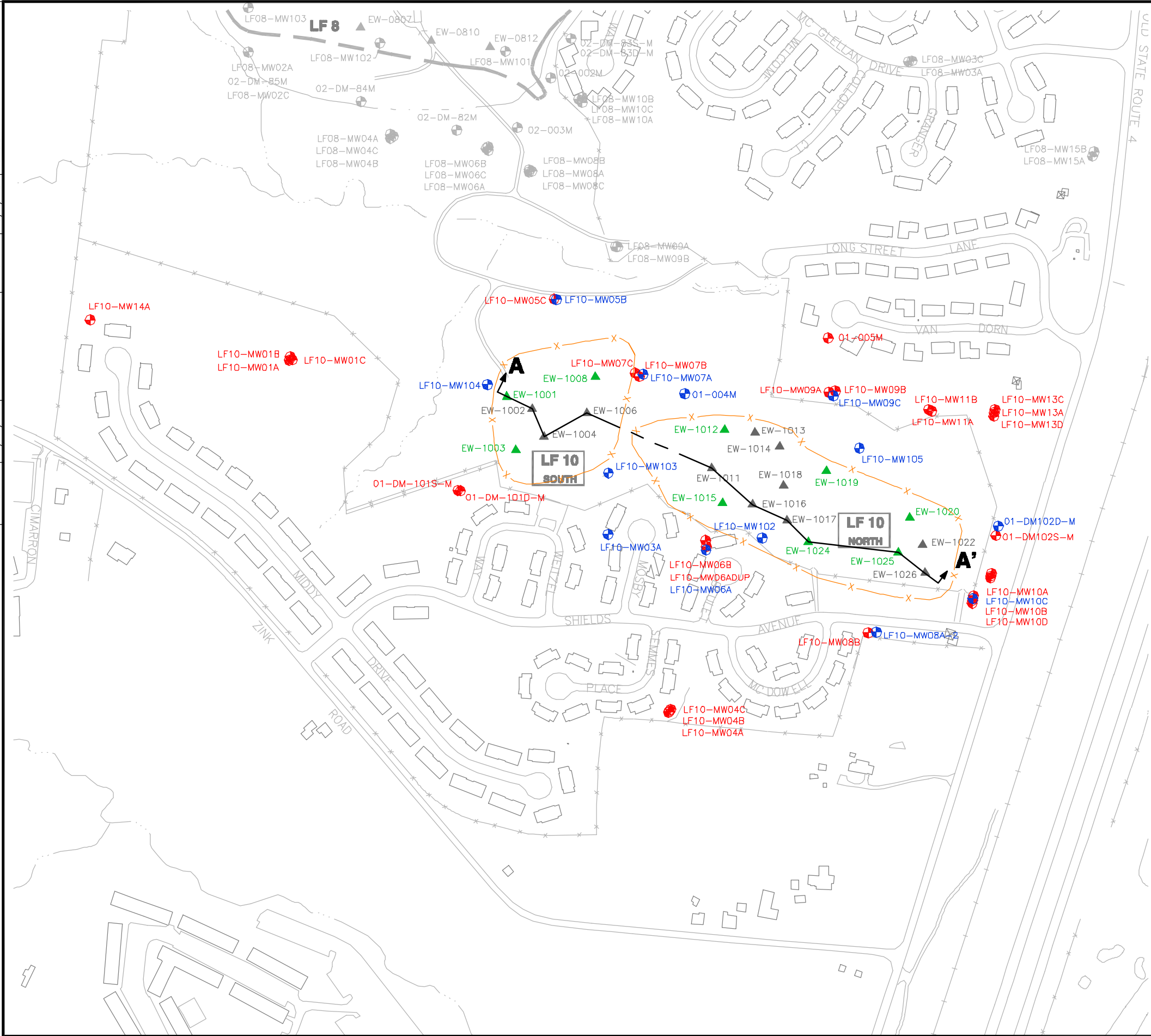
- MONITORING WELL SAMPLED ANNUALLY
- MONITORING WELL SAMPLED SEMI ANNUALLY
- EXTRACTION WELL LOCATIONS
- LITHOLOGIC CROSS-SECTION LINE
- FENCE



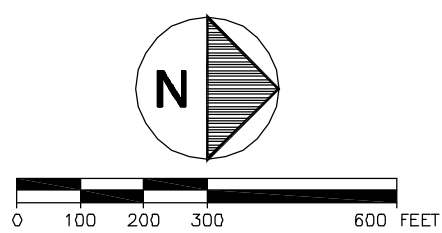
**Figure 2-2**  
**Landfill 8 Site Map**

PREPARED FOR  
**Wright-Patterson Air Force Base**  
**Dayton, Ohio**

**IT CORPORATION**  
 11499 CHESTER ROAD  
 CINCINNATI, OHIO 45246

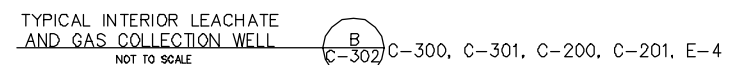


- LEGEND:**
- MONITORING WELL SAMPLED ANNUALLY
  - MONITORING WELL SAMPLED SEMI ANNUALLY
  - ▲ LANDFILL 10 EXTRACTION WELLS SAMPLED QUARTERLY
  - A** **A'** LITHOLOGIC CROSS-SECTION LINE
  - x—x— FENCE

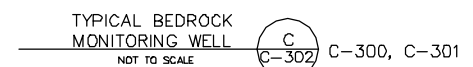


**Figure 2-3**  
**Landfill 10 Site Map**  
 PREPARED FOR  
**Wright-Patterson Air Force Base**  
**Dayton, Ohio**

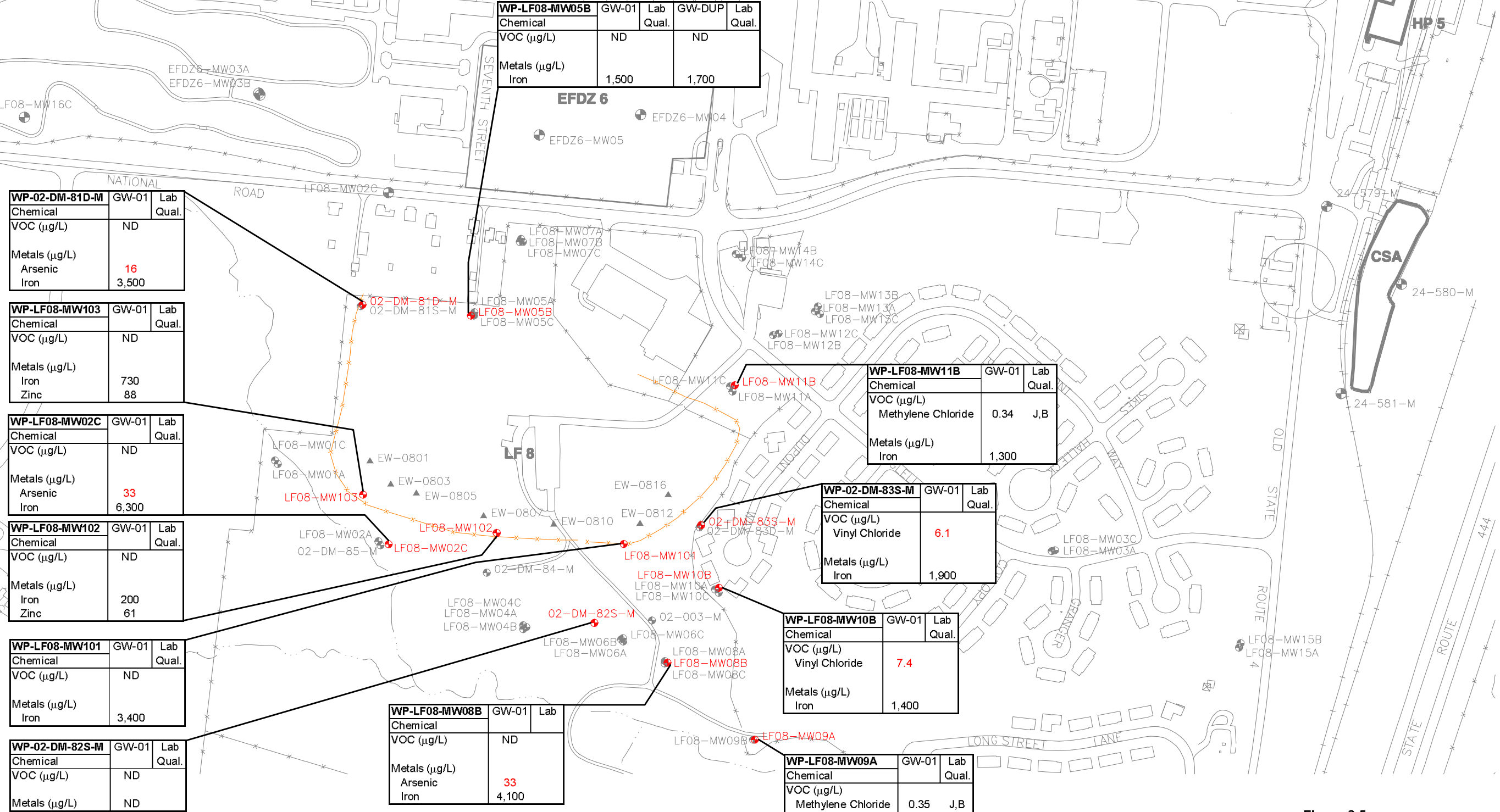
**IT CORPORATION**  
 11499 CHESTER ROAD  
 CINCINNATI, OHIO 45246



- VARIES-SEE WELL  
SCHEDULE THIS SHEET

A

DRAWING 2001 15-41.DWG  
7/11/01  
MC  
GP  
7/11/01  
MSN  
7/11/01  
DRAWN BY



**Figure 2-5**  
**Landfill 8**  
**Detected Chemicals of**  
**Concern: April 2001**

PREPARED FOR

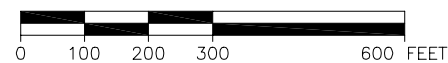
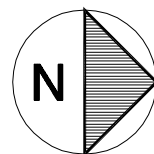
**Wright-Patterson Air Force Base**  
**Dayton, Ohio**



IT CORPORATION  
11499 CHESTER ROAD  
CINCINNATI, OHIO 45246

**LEGEND:**

- MONITORING WELL LOCATION
- EXTRACTION WELL LOCATION
- ND NOT DETECTED
- 16 VOC CONCENTRATION (µg/L) (RED=>MCL AND/OR ROD COMPLIANCE LEVEL)



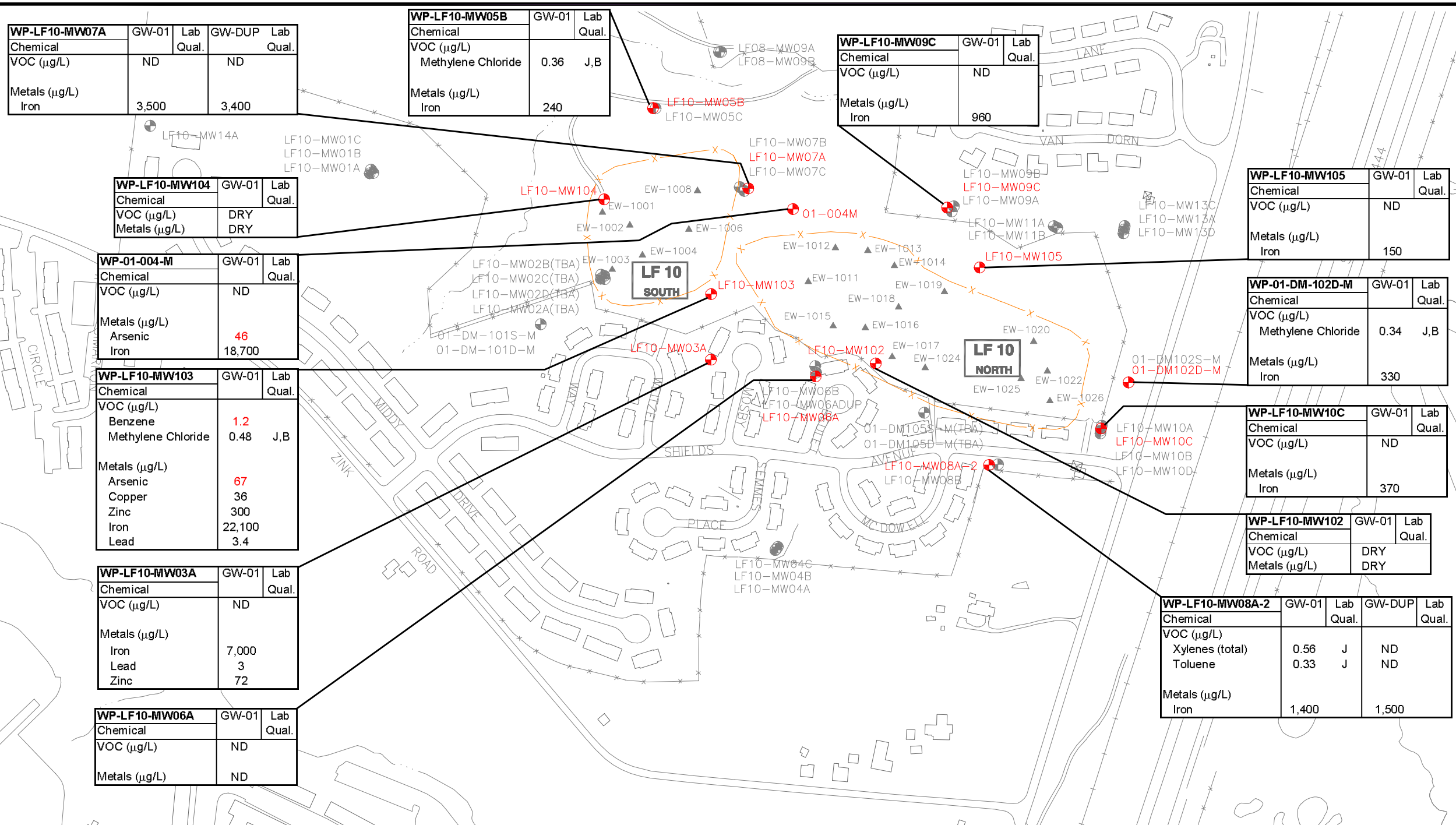


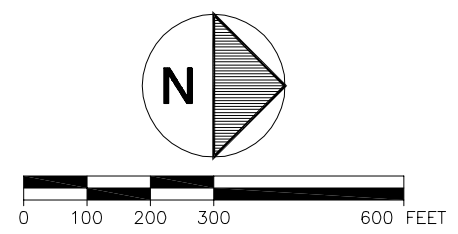
Figure 2-6  
Landfill 10  
Detected Chemicals of  
Concern: April 2001

PREPARED FOR

Wright-Patterson Air Force Base  
Dayton, Ohio

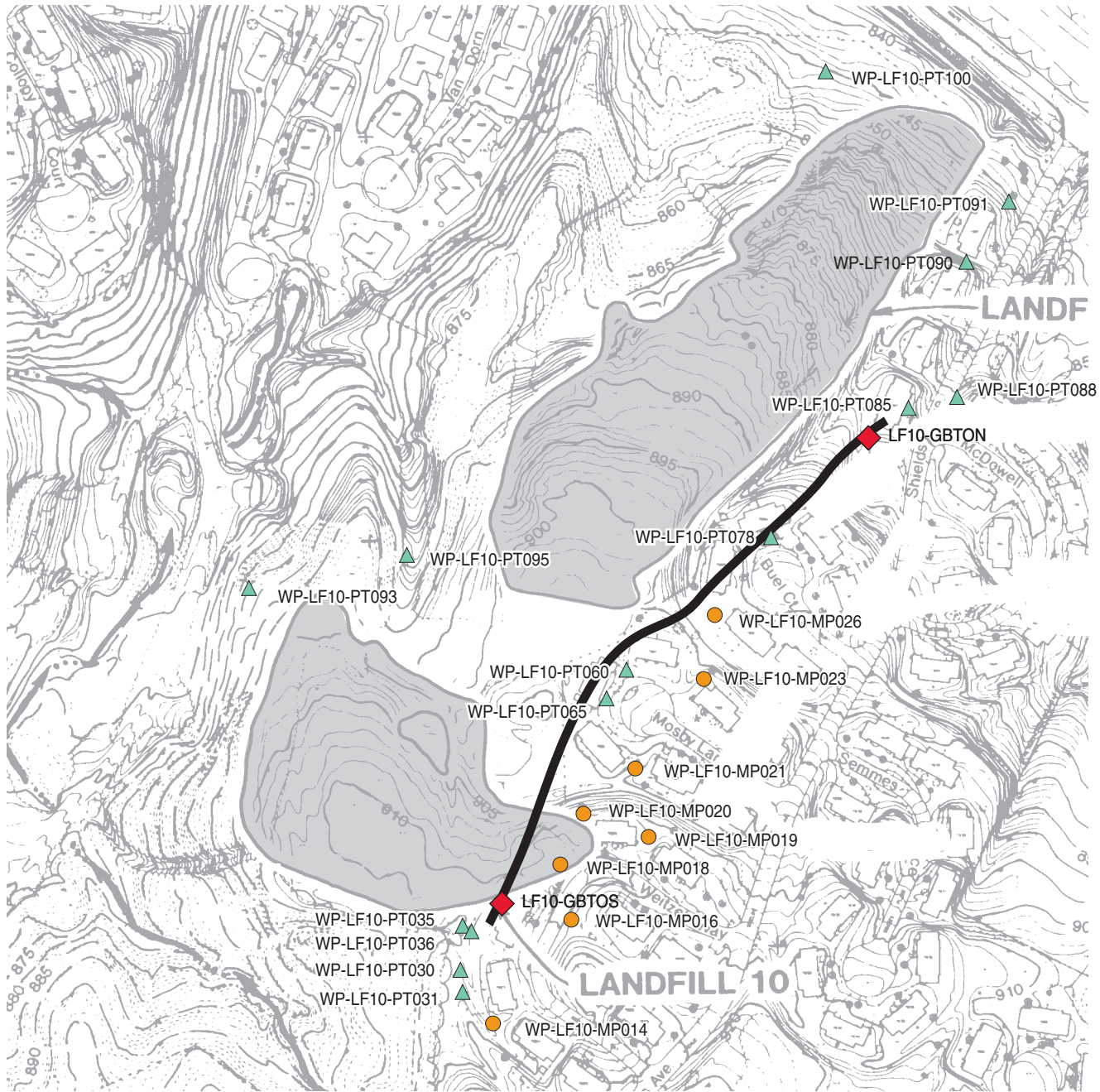
**IT CORPORATION**  
11499 CHESTER ROAD  
CINCINNATI, OHIO 45246

- LEGEND:**
- MONITORING WELL LOCATION
  - EXTRACTION WELL LOCATION
  - ND NOT DETECTED
  - 5.8 VOC CONCENTRATION (µg/L)(RED=>MCL AND/OR ROD COMPLIANCE LEVEL)





DRAWING NO.	S-777097-394-W	
DRAWING BY	JIS, III	3/29/94
CHECKED BY	MWC	GDP
APPROVED BY		
2/5/01		
2/5/01		



- ◆ LF10-GBTOS Gas Barrier Trench Monitoring Point
- ▲ WP-LF10-PT100 LFG Punchbar
- WP-LF10-MP014 LFG Monitoring Probe
- Gas Barrier Trench
- Approximate Landfill Boundary

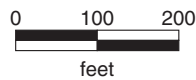
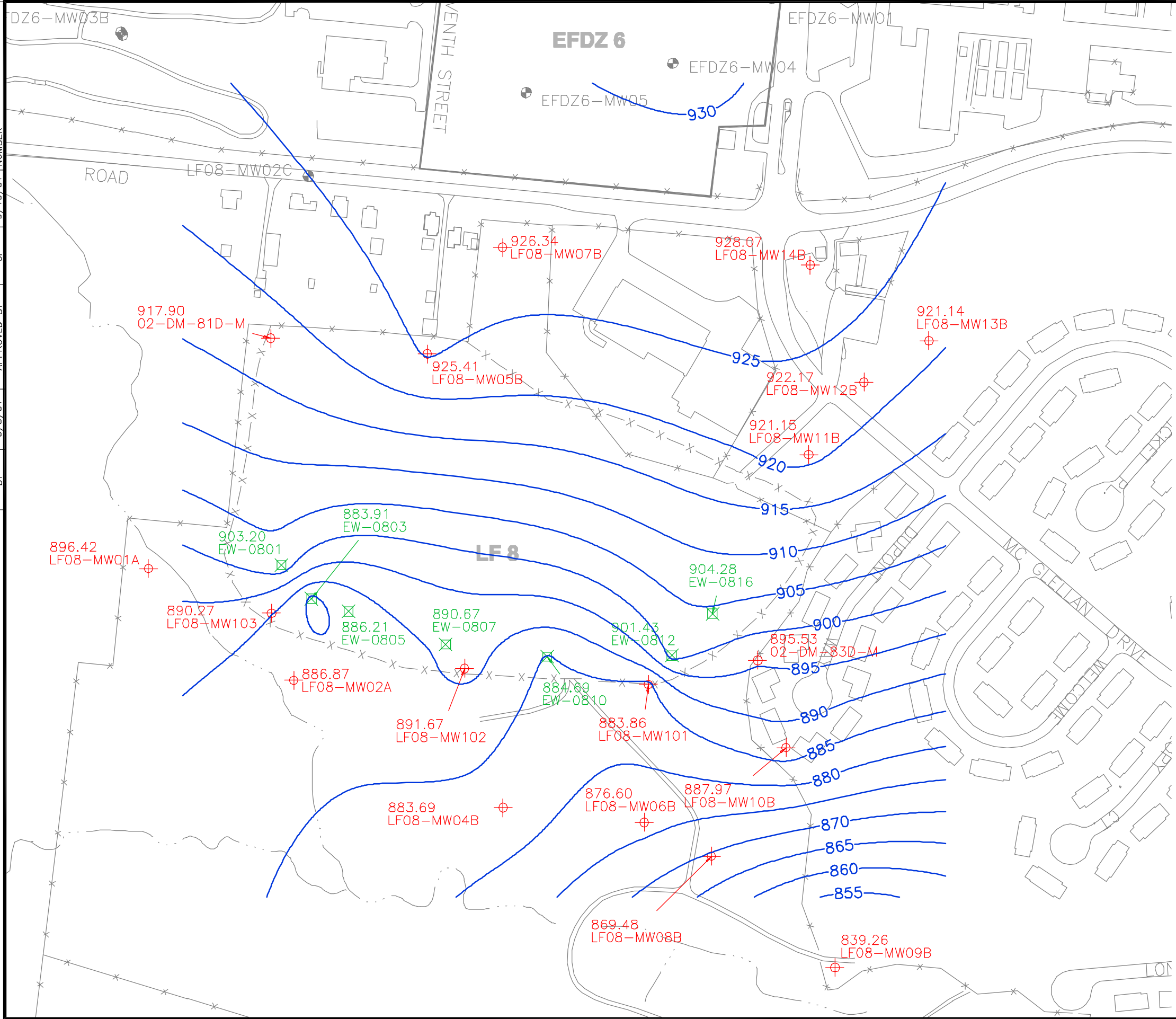


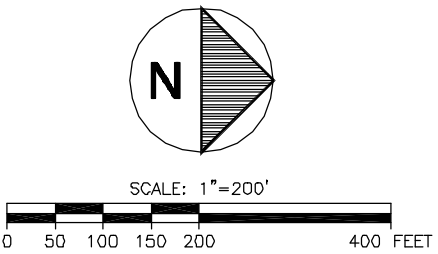
Figure 2-8. Landfill 10 Landfill Gas Monitoring Locations

Prepared for  
Wright-Patterson Air Force Base  
Dayton, Ohio


DRAWN BY  
 MSN  
 5/3/01  
 CHECKED BY  
 MC  
 9/10/01  
 APPROVED BY  
 GP  
 9/10/01  
 NUMBER  
 15-08.DWG

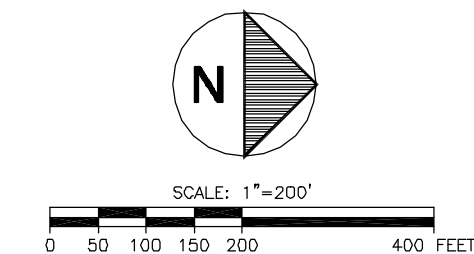
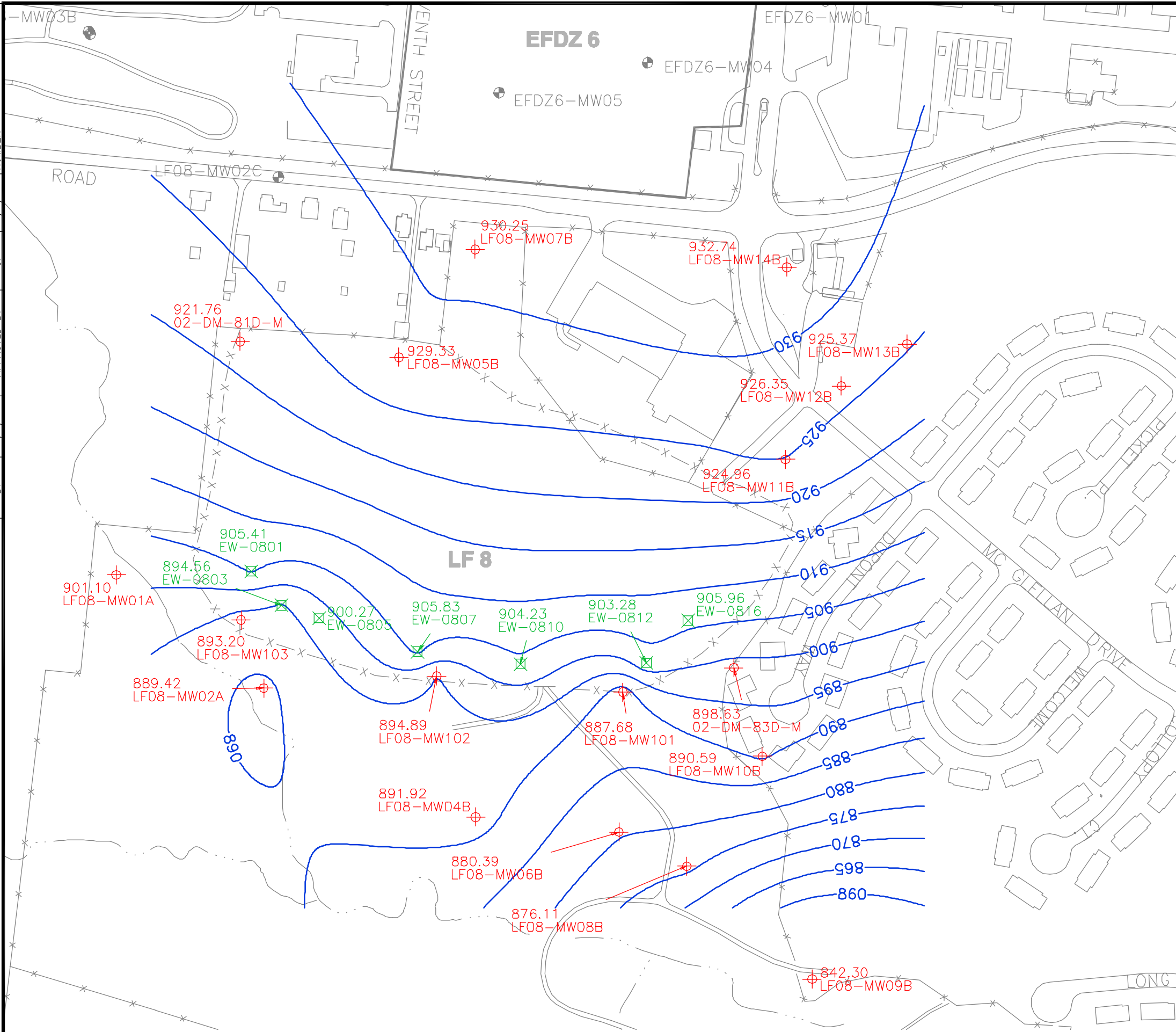


- LEGEND:**
- MONITORING WELL LOCATION
  - EXTRACTION WELL SAMPLING LOCATION
  - 890 GROUNDWATER ELEVATION CONTOUR (ft, msl)



**Figure 2-9**  
**Landfill 8**  
**Groundwater Elevation Contour Map:**  
**January 25, 2001**  
 PREPARED FOR  
**Wright-Patterson Air Force Base**  
**Dayton, Ohio**


**IT CORPORATION**  
 11499 CHESTER ROAD  
 CINCINNATI, OHIO 45246



**Figure 2-10**

**Landfill 8**

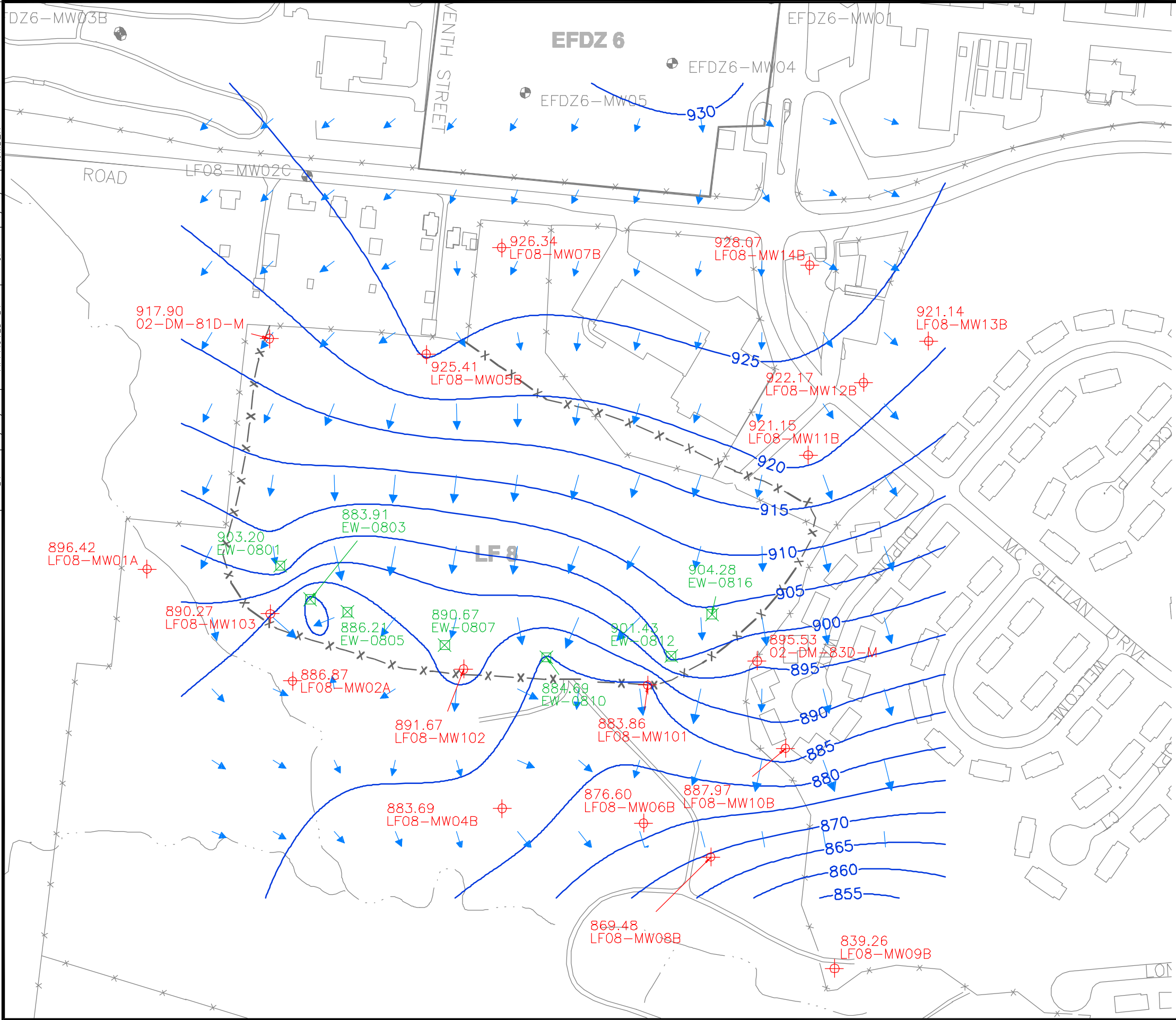
**Groundwater Elevation Contour Map:**

**April 18, 2001**

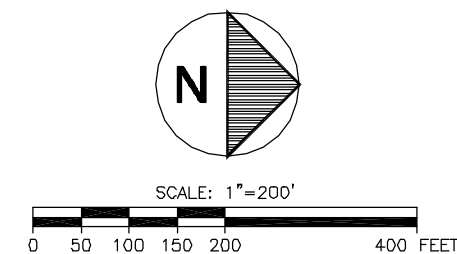
PREPARED FOR

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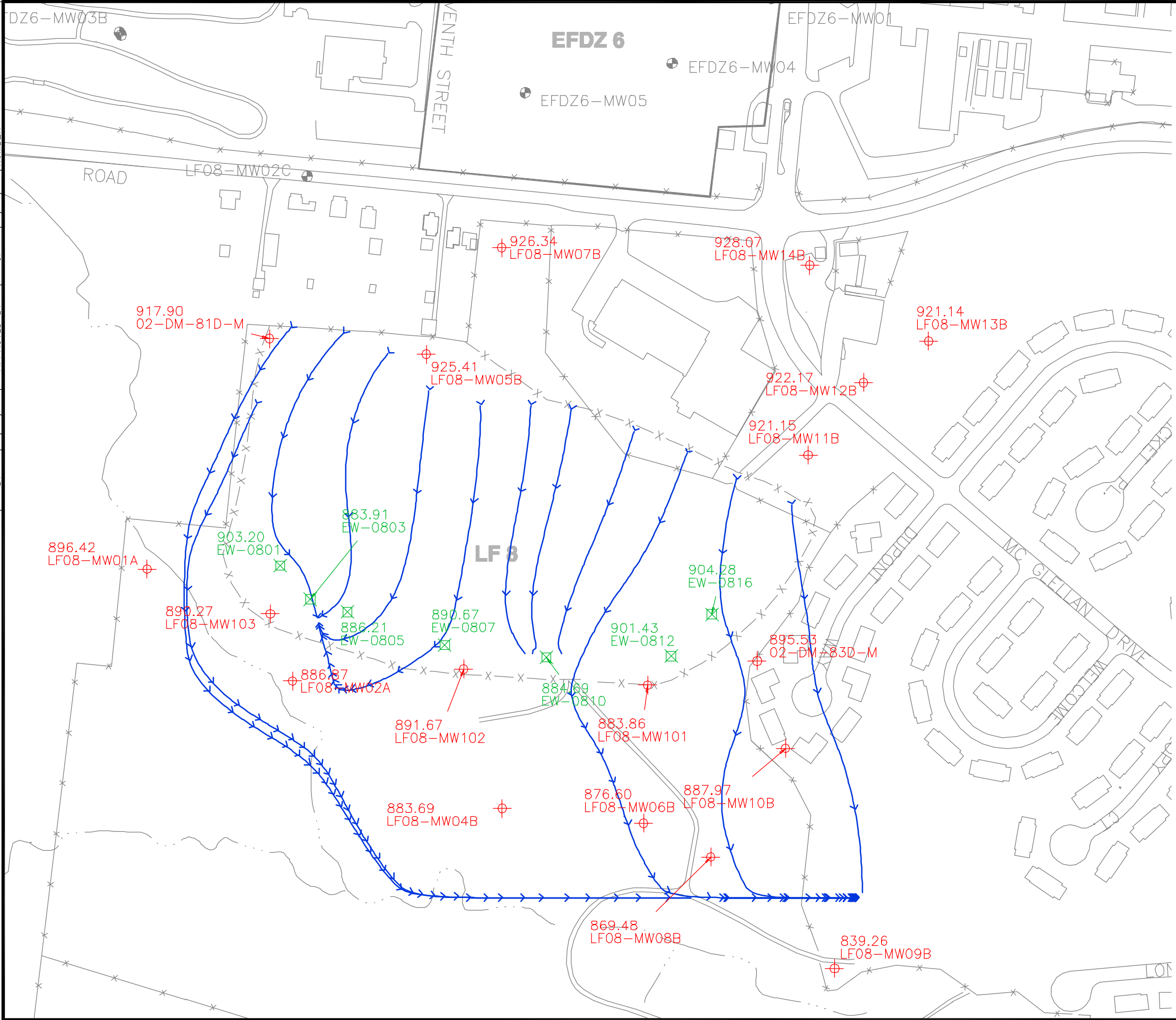
- LEGEND:**
- ⊕ MONITORING WELL LOCATION
  - ⊠ EXTRACTION WELL SAMPLING LOCATION
  - 890 GROUNDWATER ELEVATION CONTOUR (ft, msl)
  - GROUNDWATER FLOW VELOCITY VECTOR



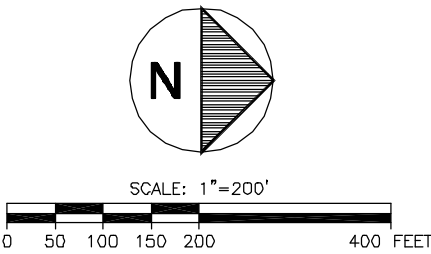
**Figure 2-11**  
**Landfill 8**  
**Velocity Vector Plot:**  
**January 25, 2001**

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**Wright-Patterson Air Force Base**  
**Dayton, Ohio**

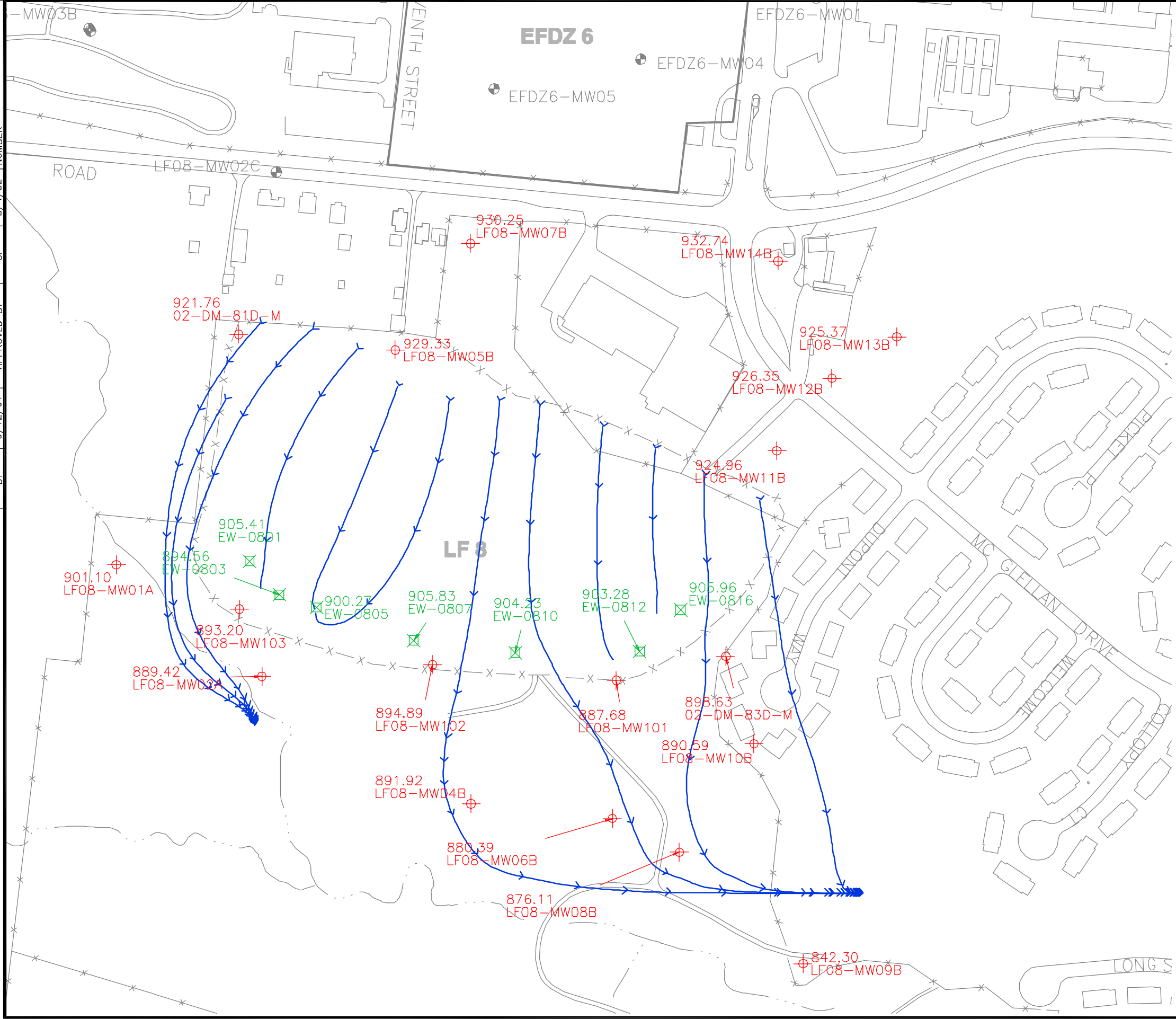




- LEGEND:**
- MONITORING WELL LOCATION
  - EXTRACTION WELL SAMPLING LOCATION
  - PARTICLE TRACK WITH FLOW DIRECTION

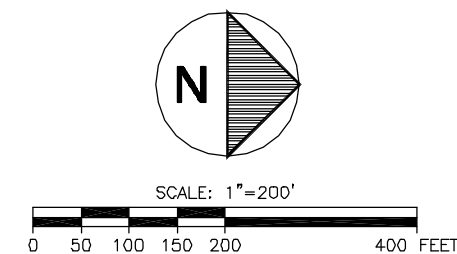


**Figure 2-13**  
**Landfill 8**  
**Particle Track Plot:**  
**January 25, 2001**  
 PREPARED FOR  
**Wright-Patterson Air Force Base**  
**Dayton, Ohio**



- LEGEND:**
- MONITORING WELL LOCATION
  - EXTRACTION WELL SAMPLING LOCATION
  - PARTICLE TRACK WITH FLOW DIRECTION

NOTE: THE EXTRACTION SYSTEM WAS NOT OPERATING DUE TO A POWER OUTAGE FROM APRIL 12 THROUGH APRIL 18, 2001.



**Figure 2-14**

**Landfill 8**  
**Particle Track Plot:**  
**April 18, 2001**

PREPARED FOR

**Wright-Patterson Air Force Base**  
**Dayton, Ohio**

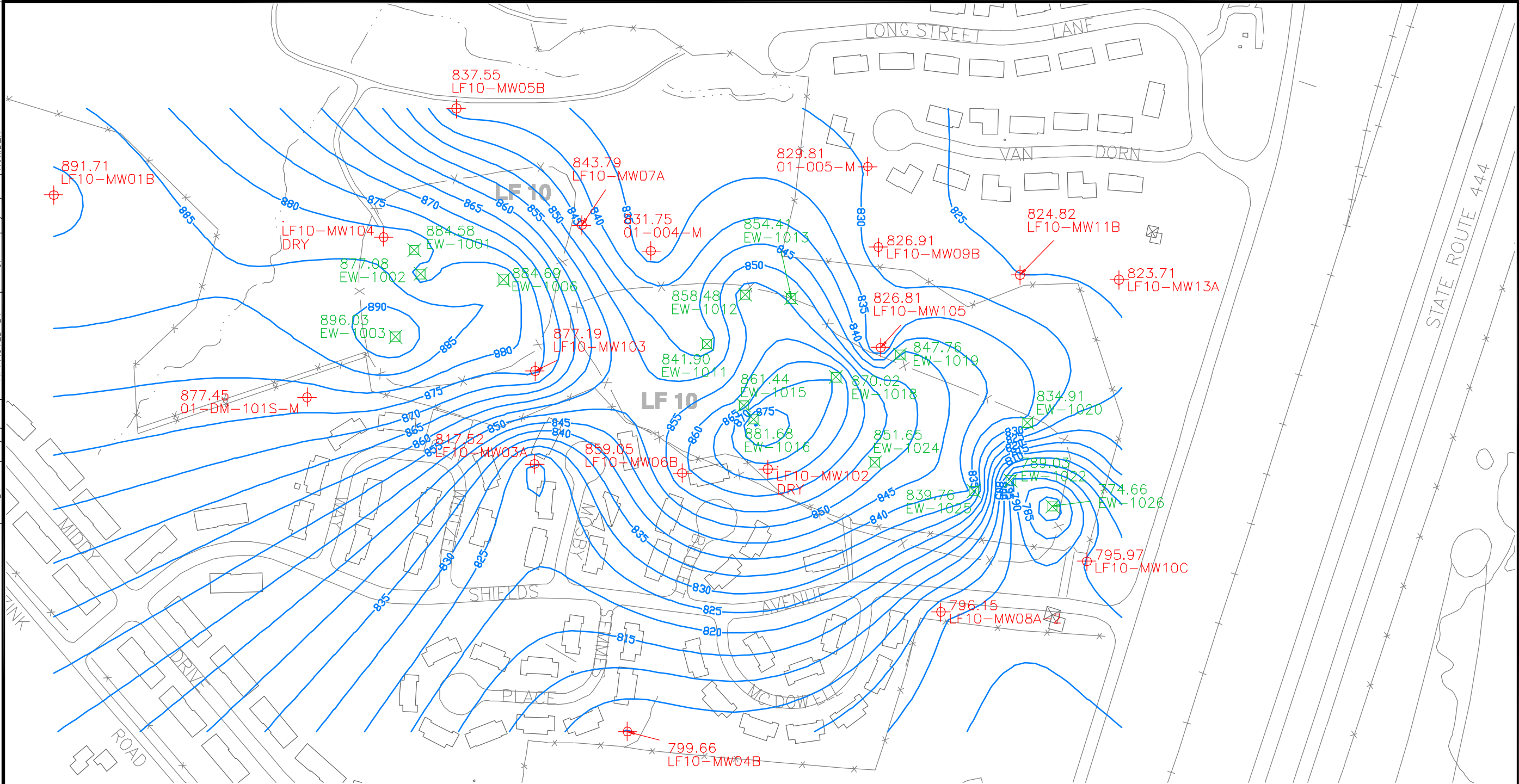


Figure 2-15

**Landfill 10**  
**Groundwater Elevation Contour Map:**  
**January 25, 2001**




PREPARED FOR

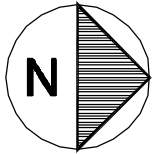
**Wright-Patterson Air Force Base**  
**Dayton, Ohio**



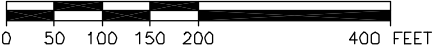
**IT CORPORATION**  
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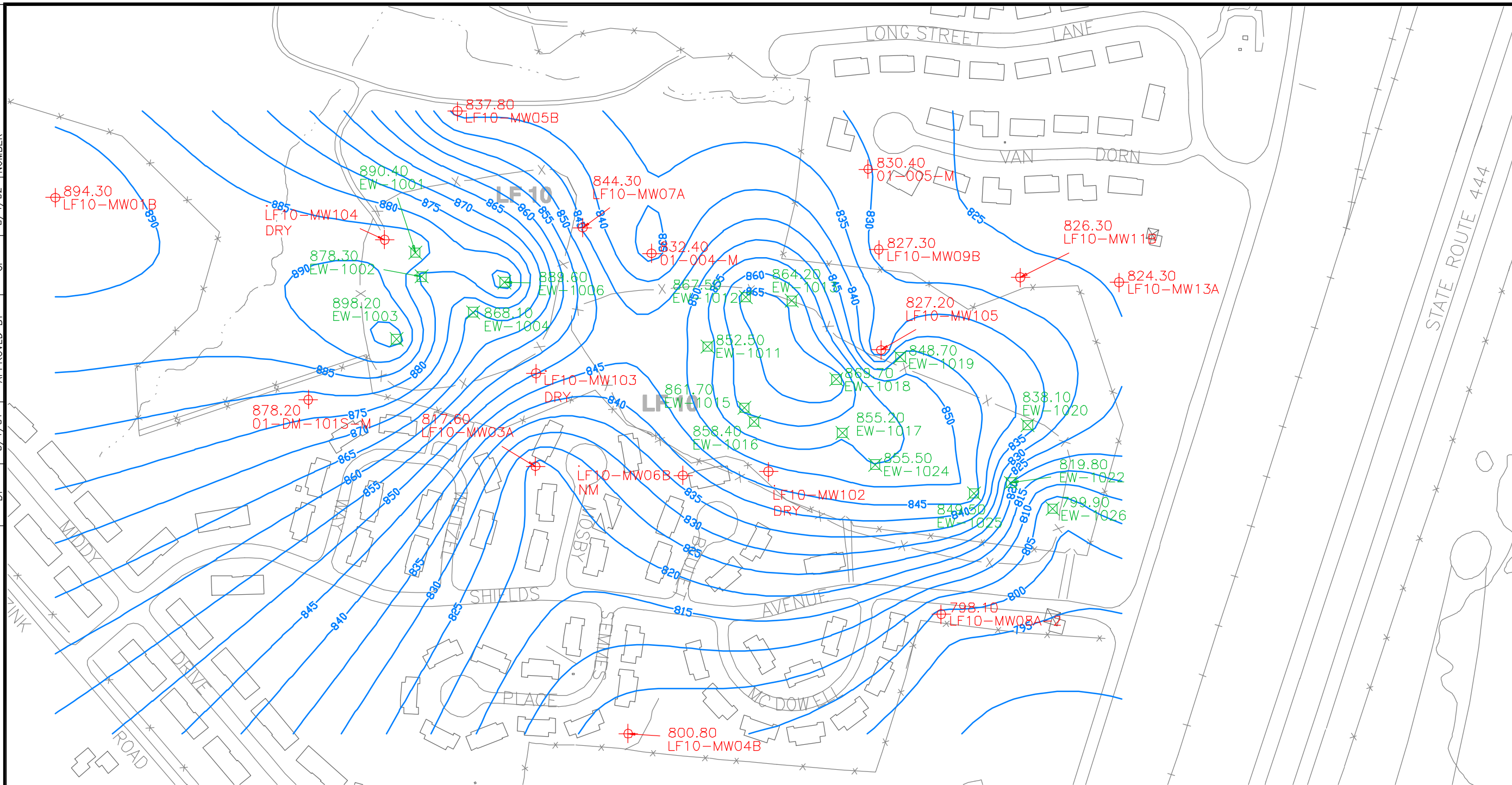
**LEGEND:**

-  MONITORING WELL LOCATION
-  EXTRACTION WELL SAMPLING LOCATION
-  **890** GROUNDWATER ELEVATION CONTOUR (ft, msl)



SCALE: 1"=200'

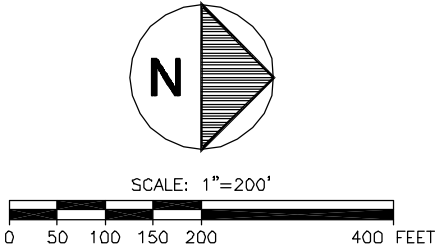




**LEGEND:**

- ⊕ MONITORING WELL LOCATION
- ⊗ EXTRACTION WELL SAMPLING LOCATION
- 890 GROUNDWATER ELEVATION CONTOUR (ft, msl)
- NM NOT MEASURED, WELL WOULD NOT OPEN

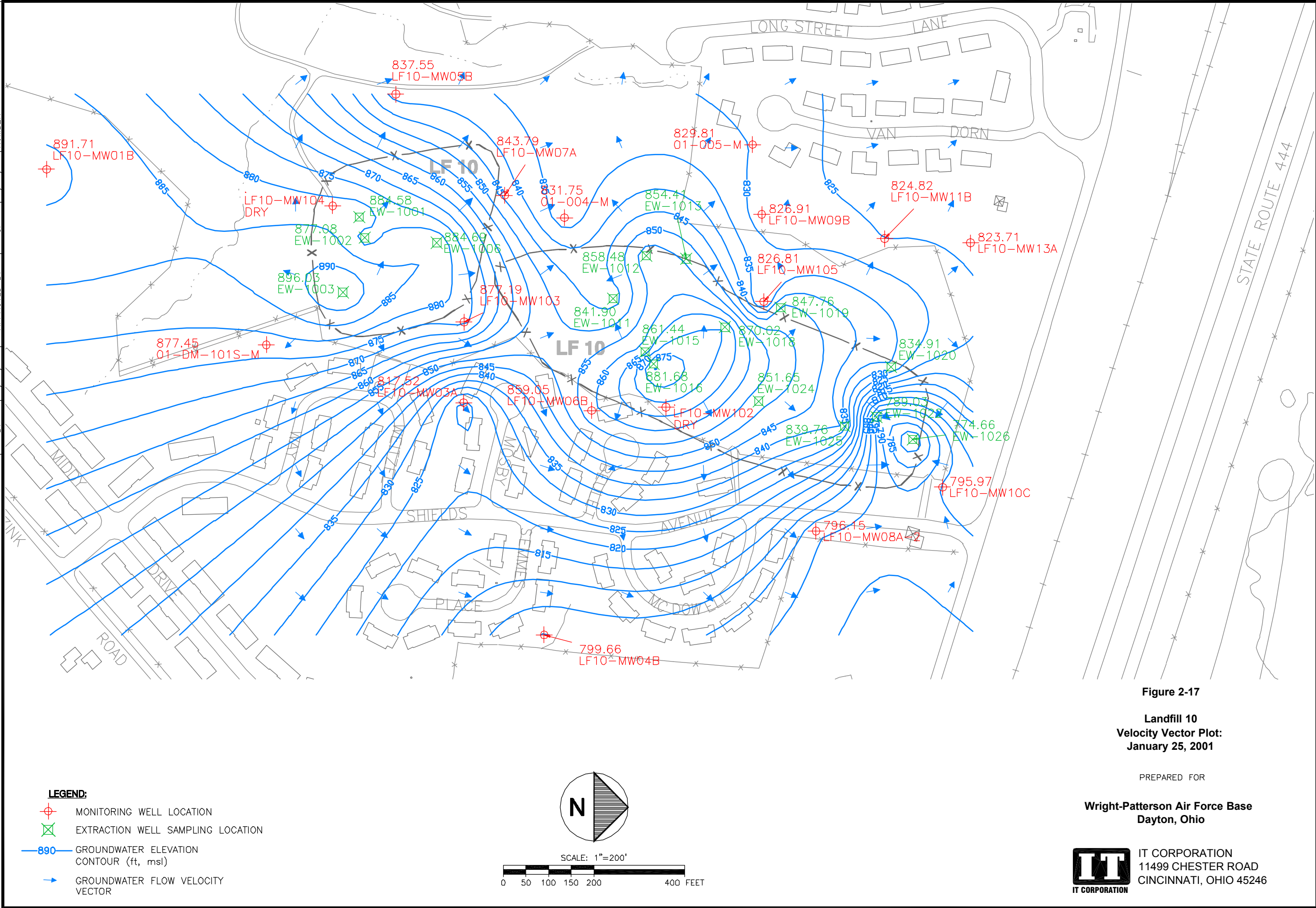
NOTE: THE EXTRACTION SYSTEM WAS NOT OPERATING DUE TO A POWER OUTAGE FROM APRIL 12 THROUGH APRIL 18, 2001.



**Figure 2-16**  
**Landfill 10**  
**Groundwater Elevation Contour Map:**  
**April 18, 2001**

PREPARED FOR  
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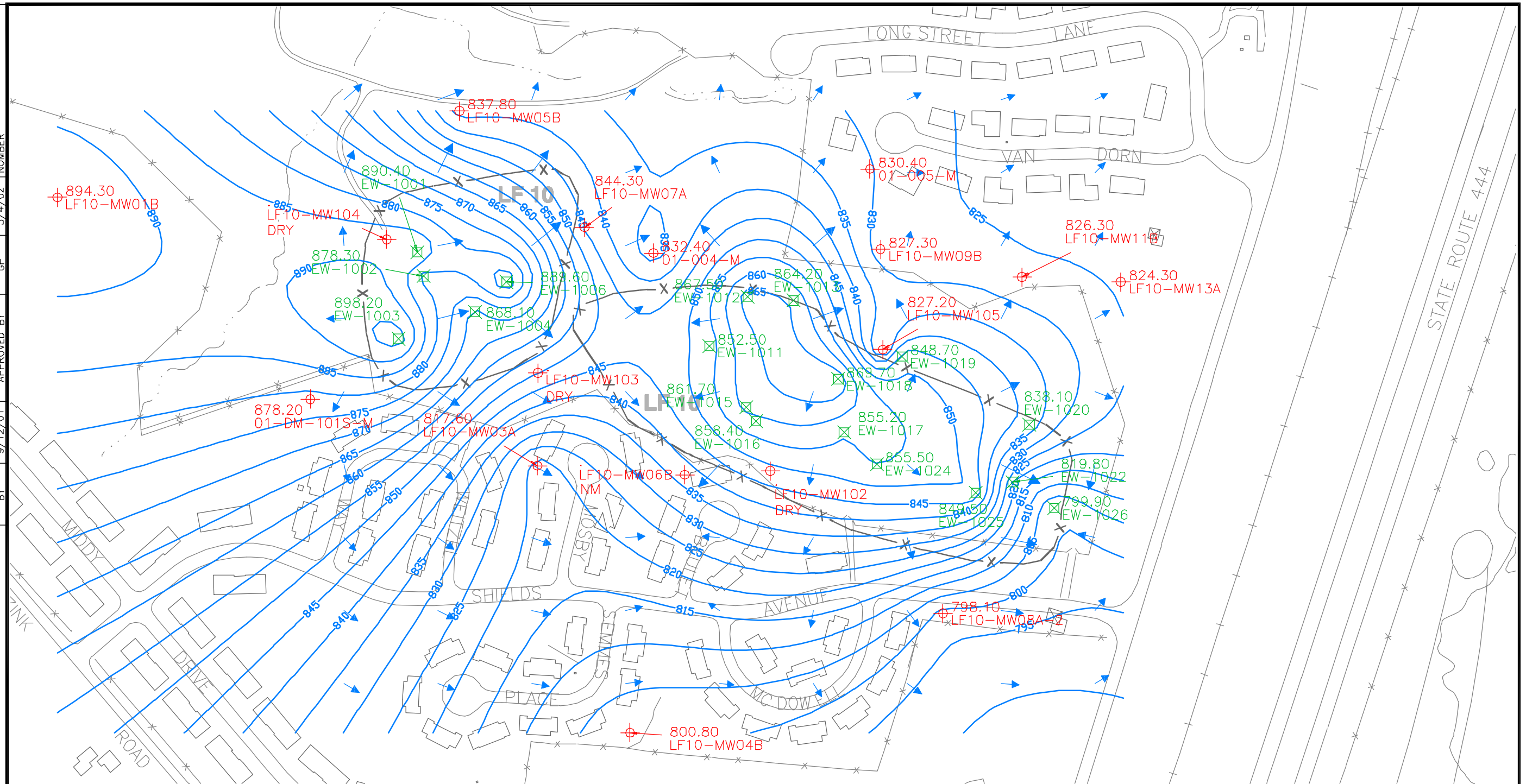


Figure 2-18

**Landfill 10**  
**Velocity Vector Plot:**  
**April 18, 2001**

PREPARED FOR

**Wright-Patterson Air Force Base**  
**Dayton, Ohio**

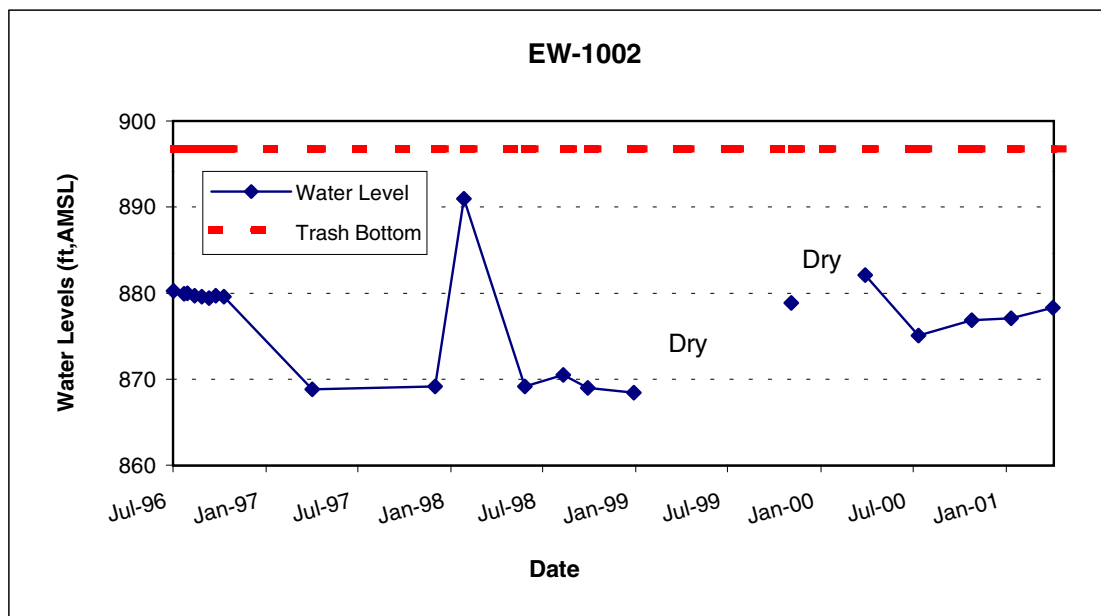
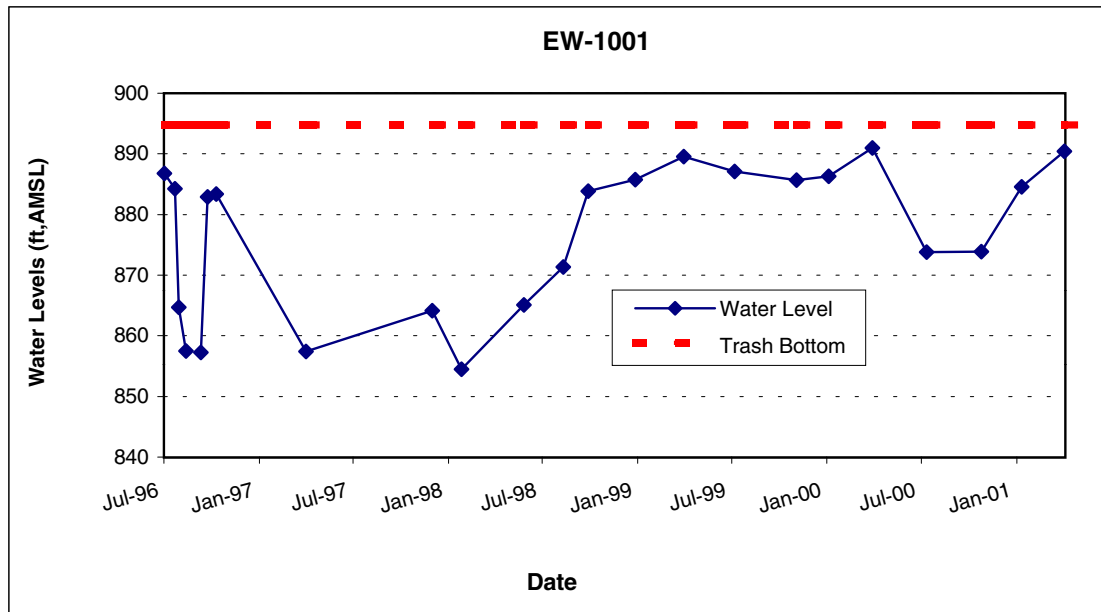


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## LANDFILL 10 WATER LEVEL ELEVATION GRAPHS

Extraction Wells: EW-1001 and EW-1002

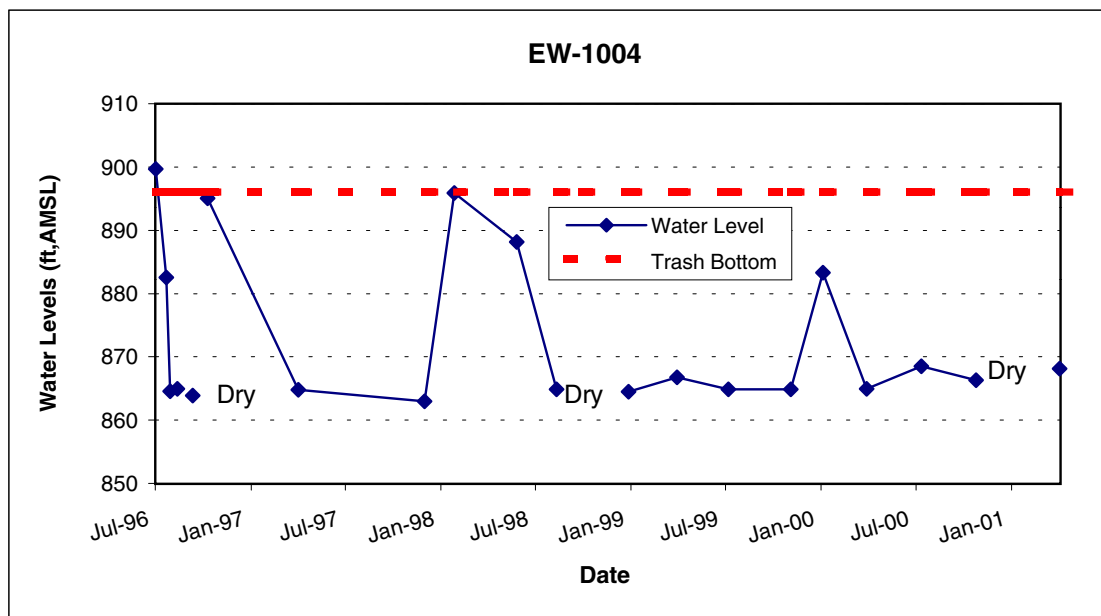
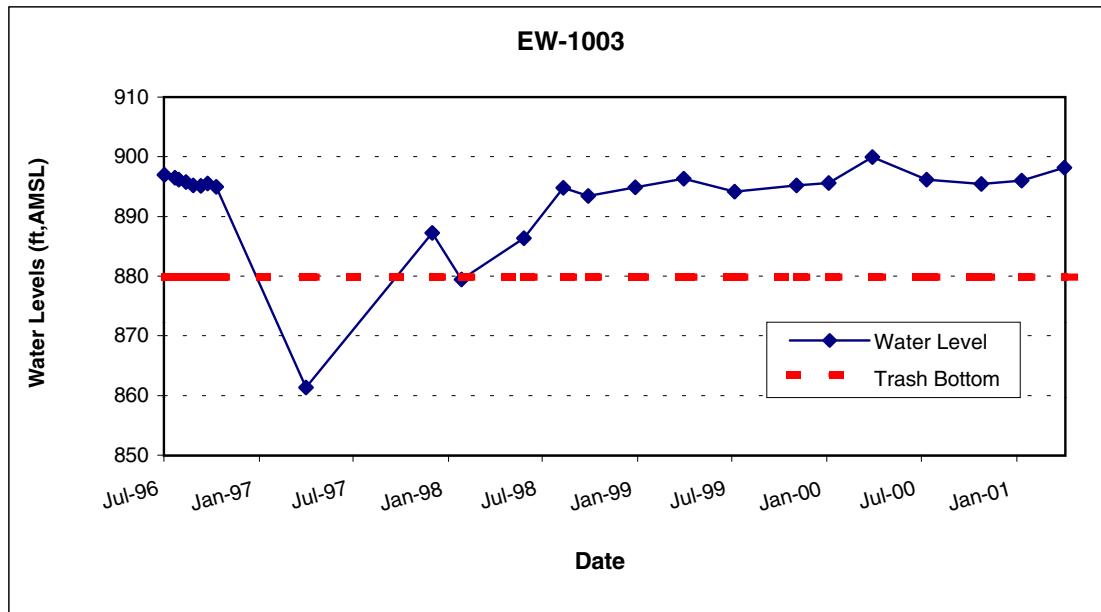
WPAFB - LTM Program



## LANDFILL 10 WATER LEVEL ELEVATION GRAPHS

Extraction Wells: EW-1003 and EW-1004

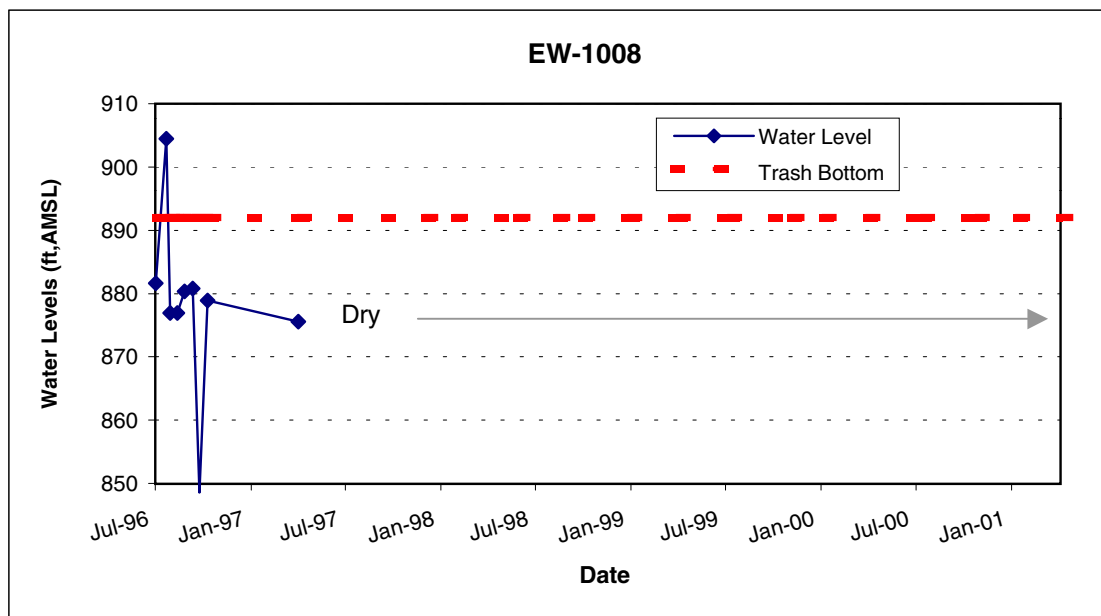
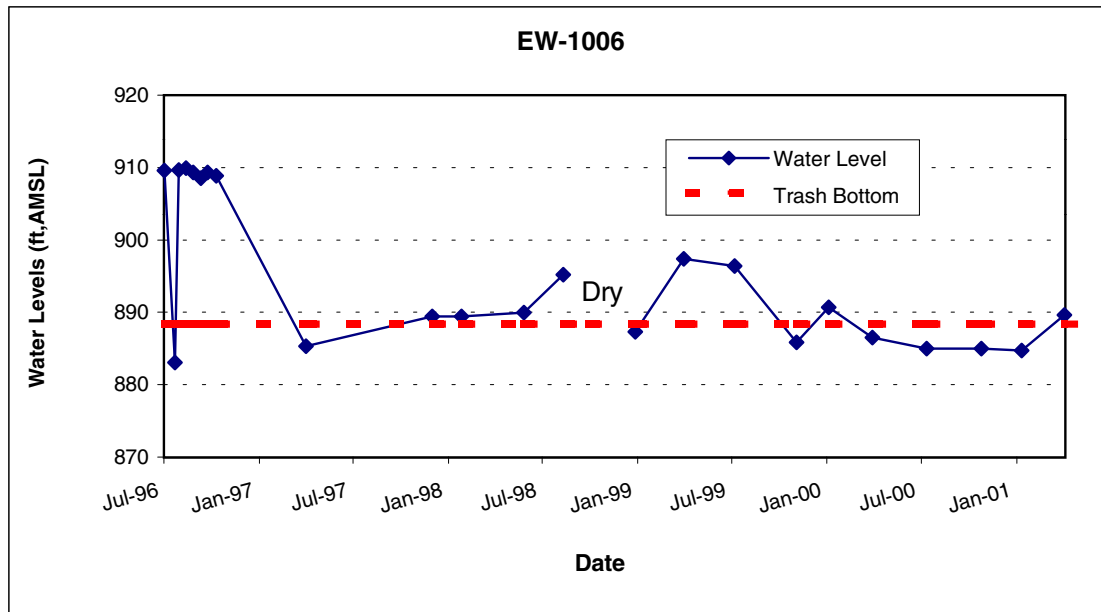
WPAFB - LTM Program



# **LANDFILL 10 WATER LEVEL ELEVATION GRAPHS**

**Extraction Wells: EW-1006 and EW-1008**

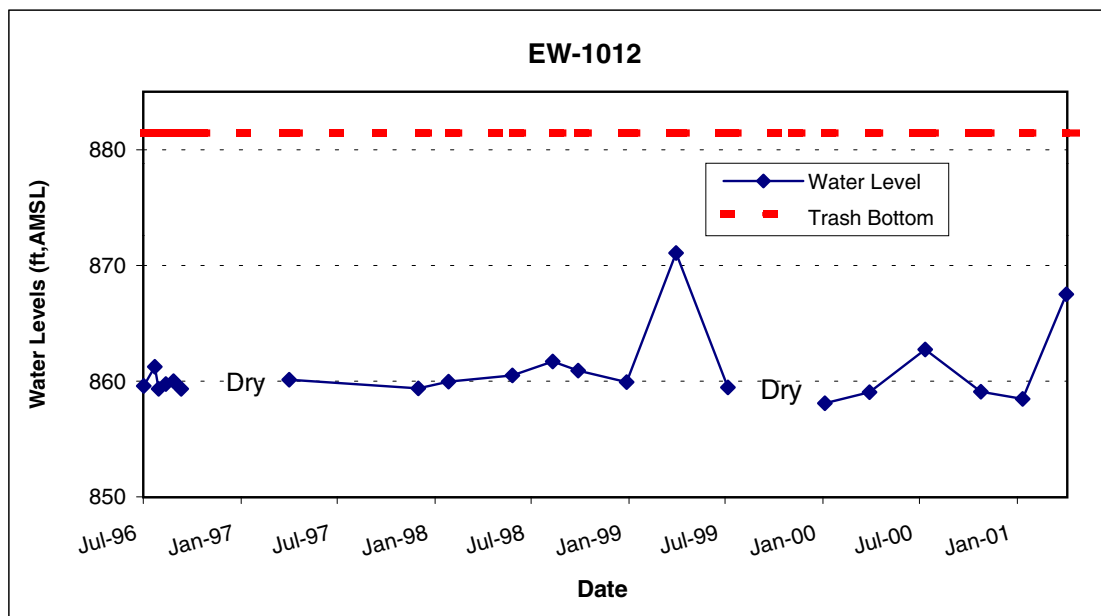
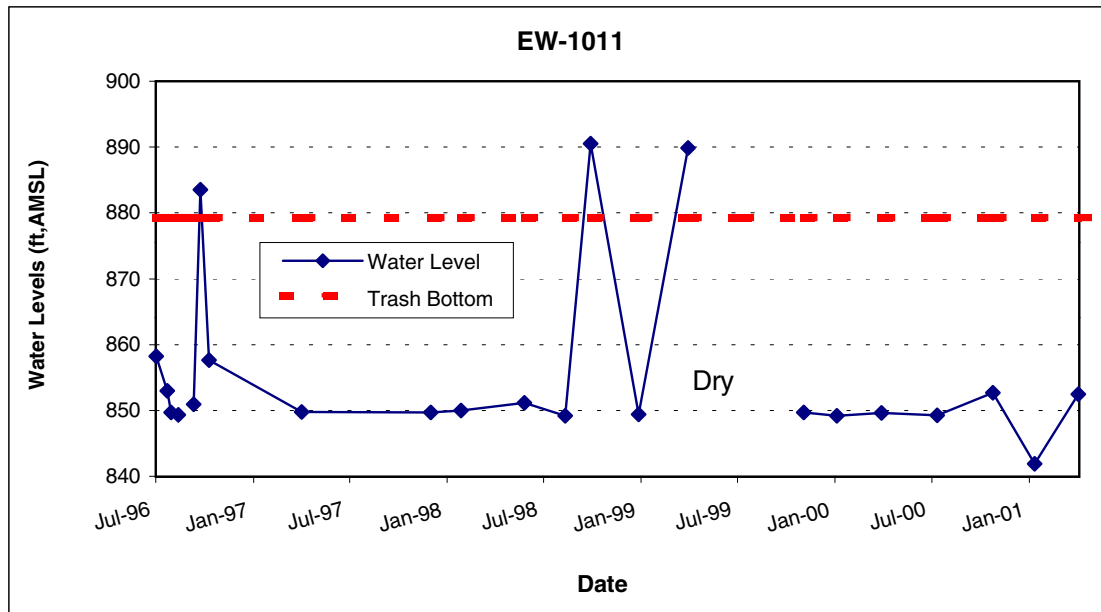
WPAFB - LTM Program



# LANDFILL 10 WATER LEVEL ELEVATION GRAPHS

Extraction Wells: EW-1011 and EW-1012

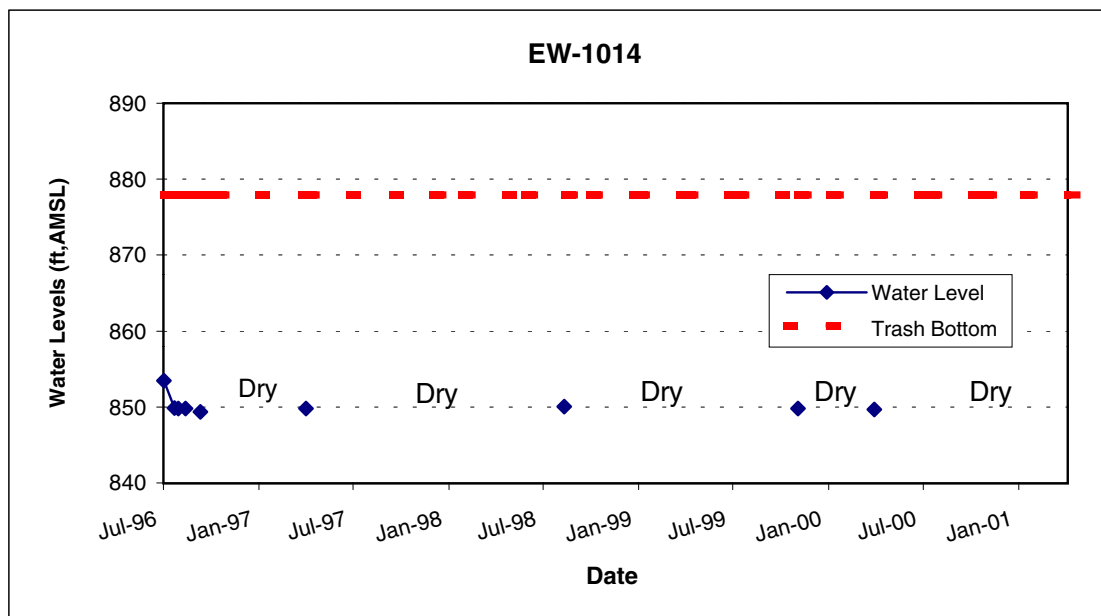
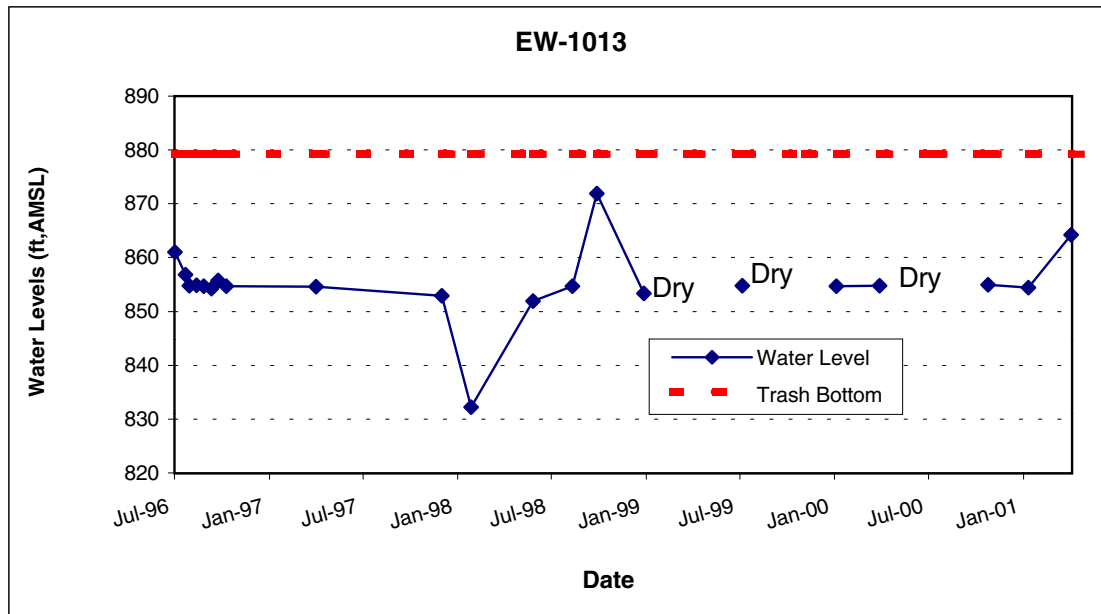
WPAFB - LTM Program



## LANDFILL 10 WATER LEVEL ELEVATION GRAPHS

Extraction Wells: EW-1013 and EW-1014

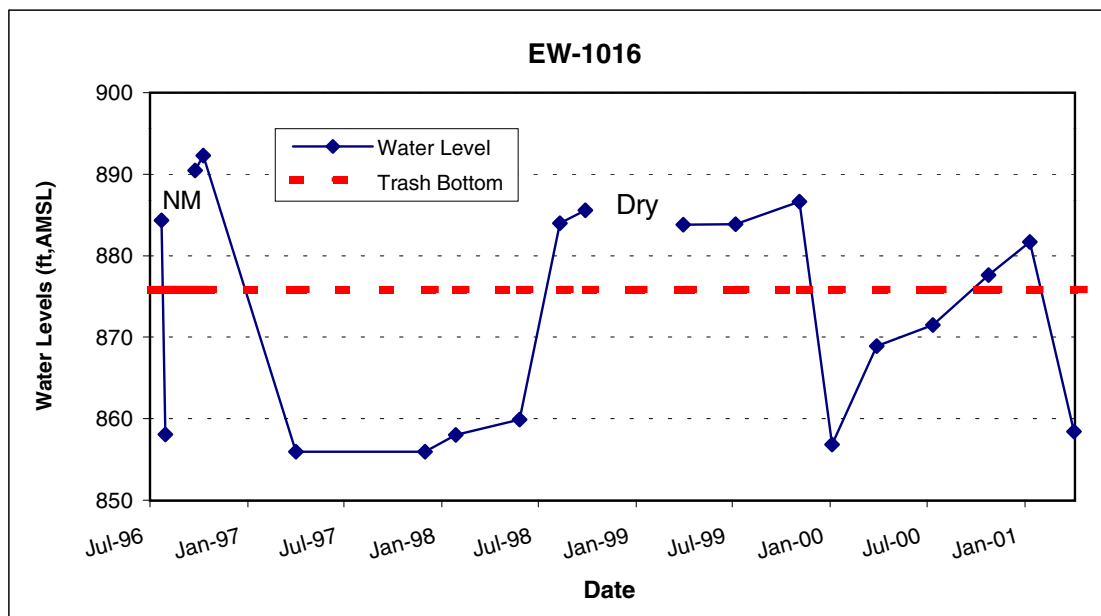
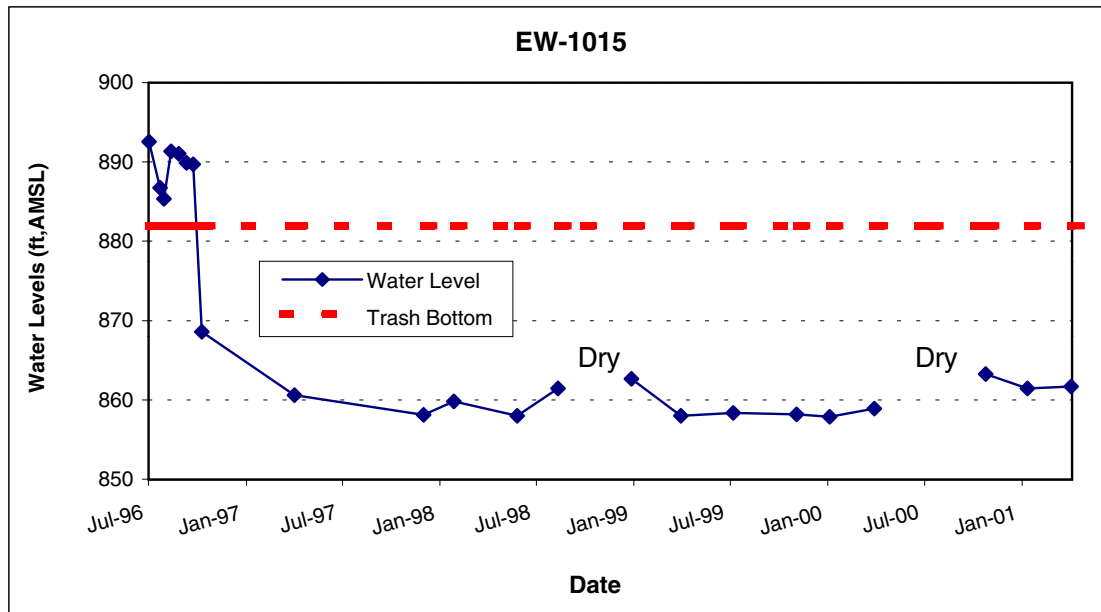
WPAFB - LTM Program



# LANDFILL 10 WATER LEVEL ELEVATION GRAPHS

Extraction Wells: EW-1015 and EW-1016

WPAFB - LTM Program



# LANDFILL 10 WATER LEVEL ELEVATION GRAPHS

Extraction Wells: EW-1017 and EW-1018

WPAFB - LTM Program

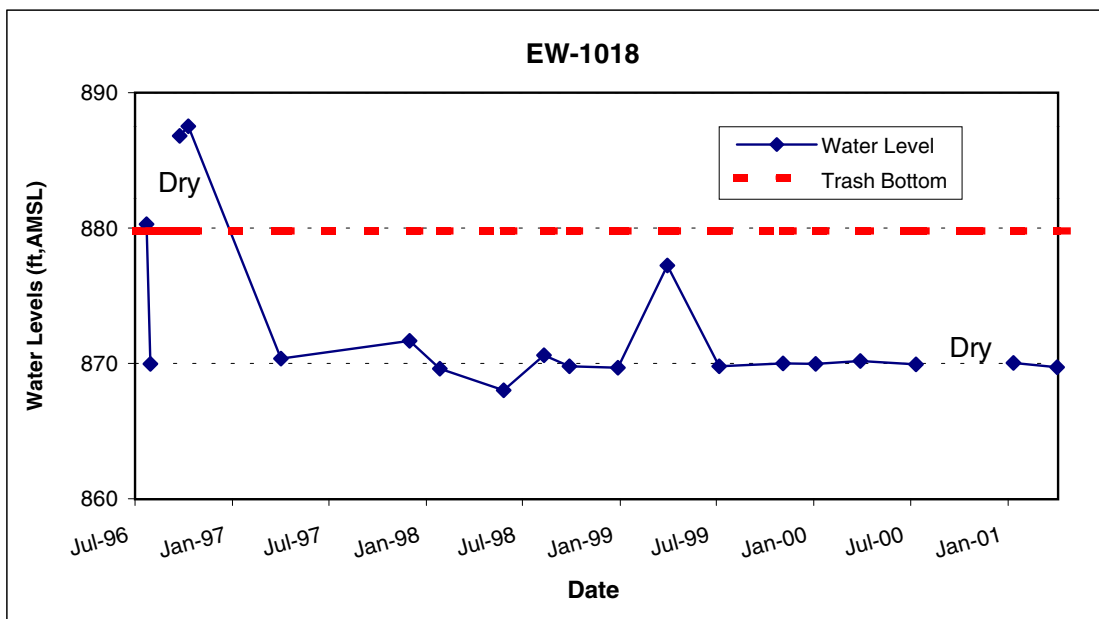
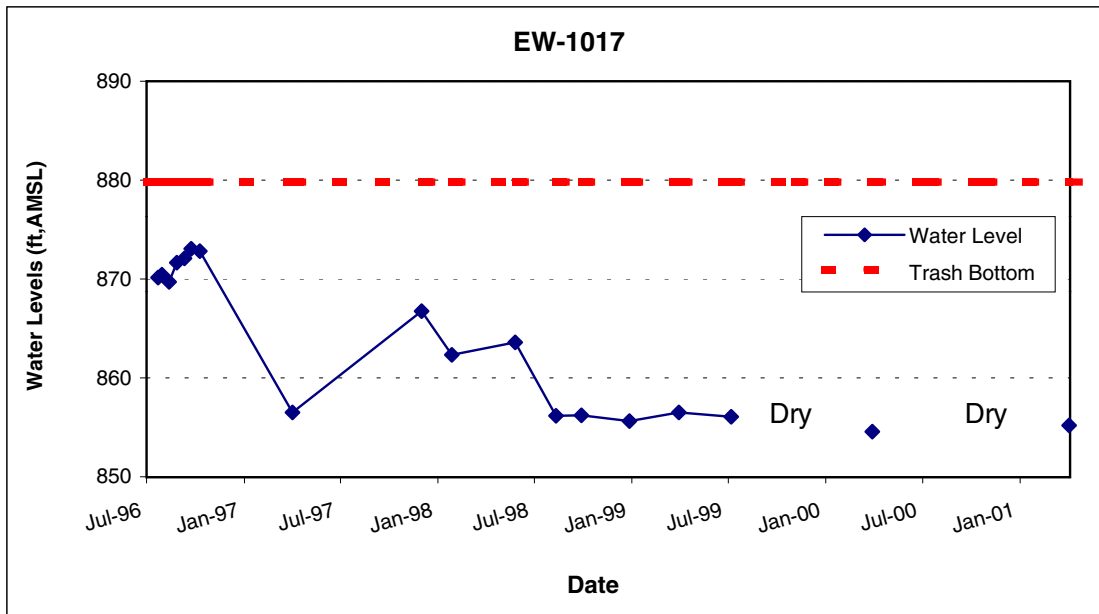
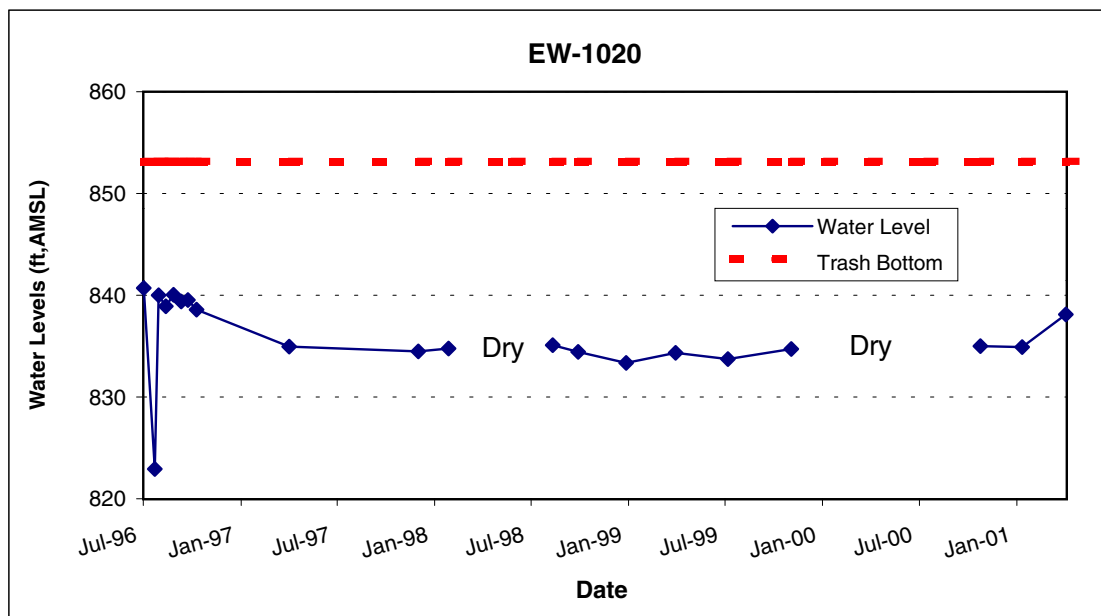
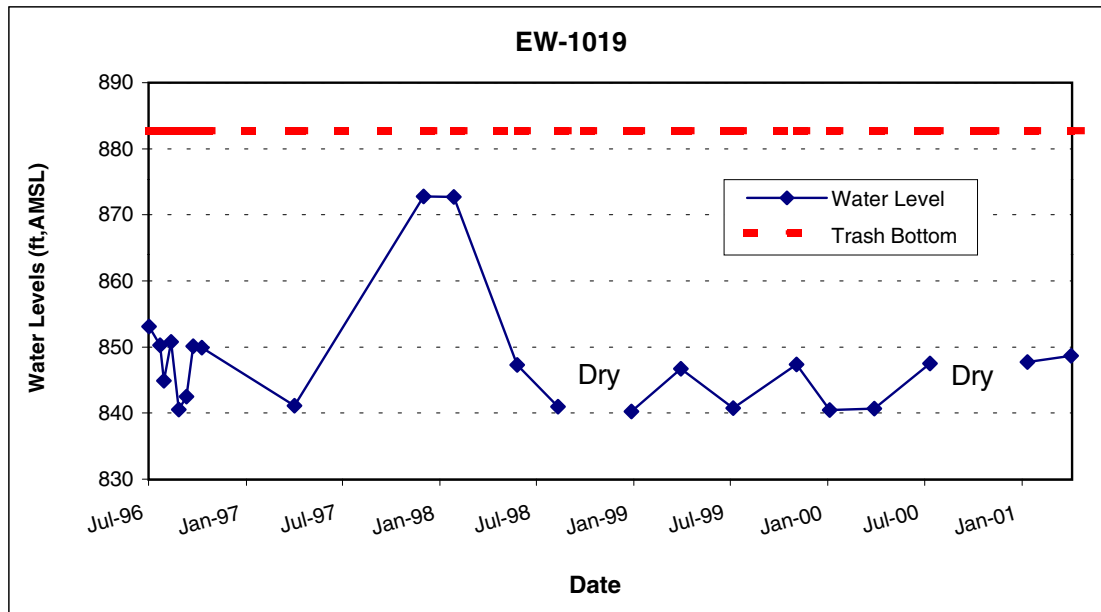


FIGURE 2-25

## LANDFILL 10 WATER LEVEL ELEVATION GRAPHS

Extraction Wells: EW-1019 and EW-1020

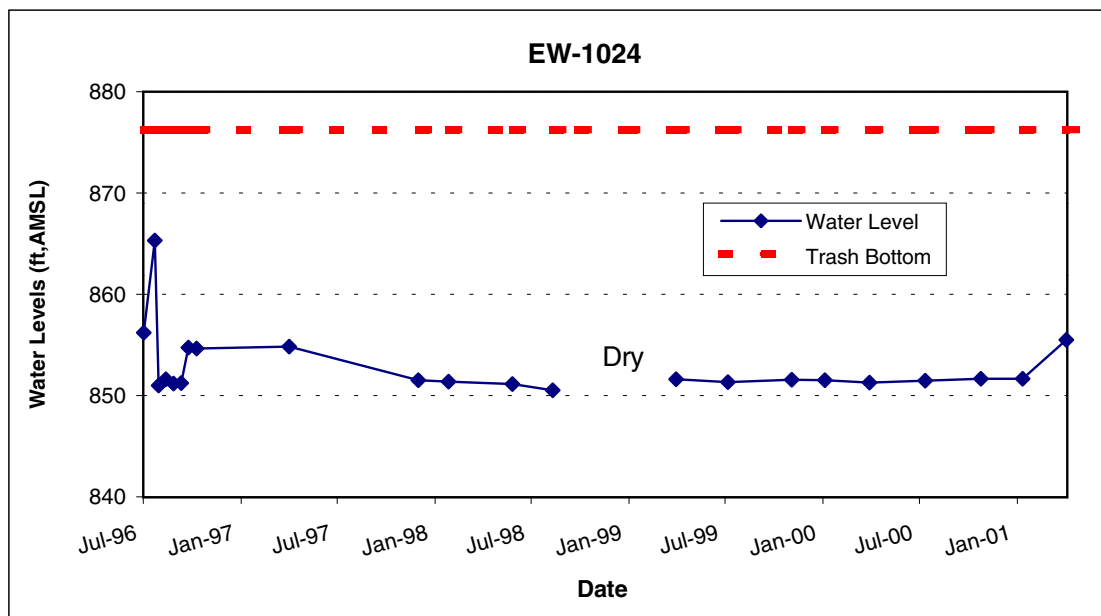
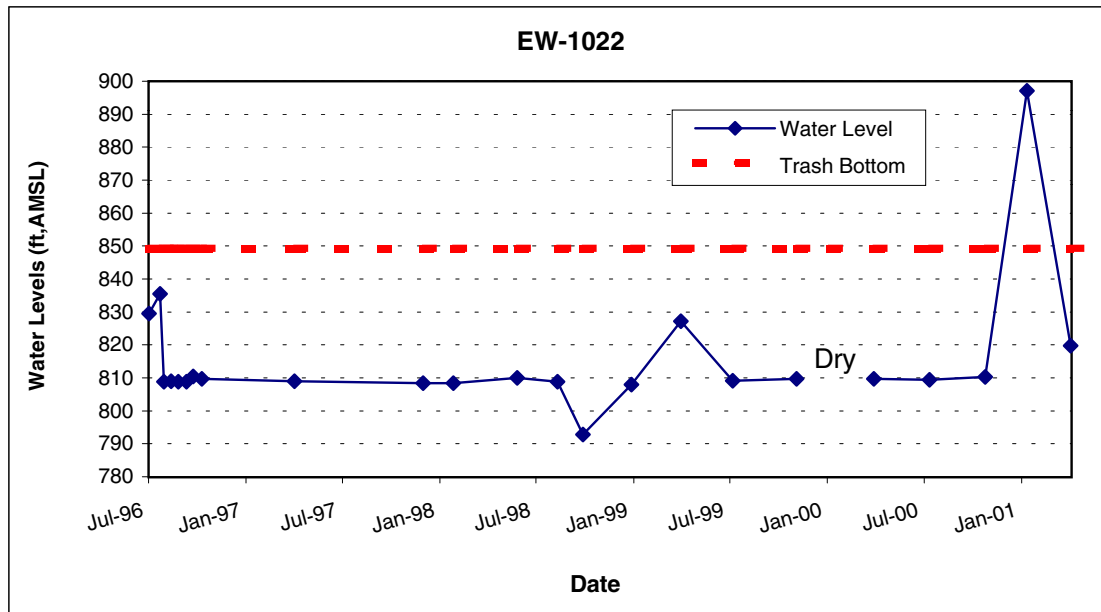
WPAFB - LTM Program



# LANDFILL 10 WATER LEVEL ELEVATION GRAPHS

Extraction Wells: EW-1022 and EW-1024

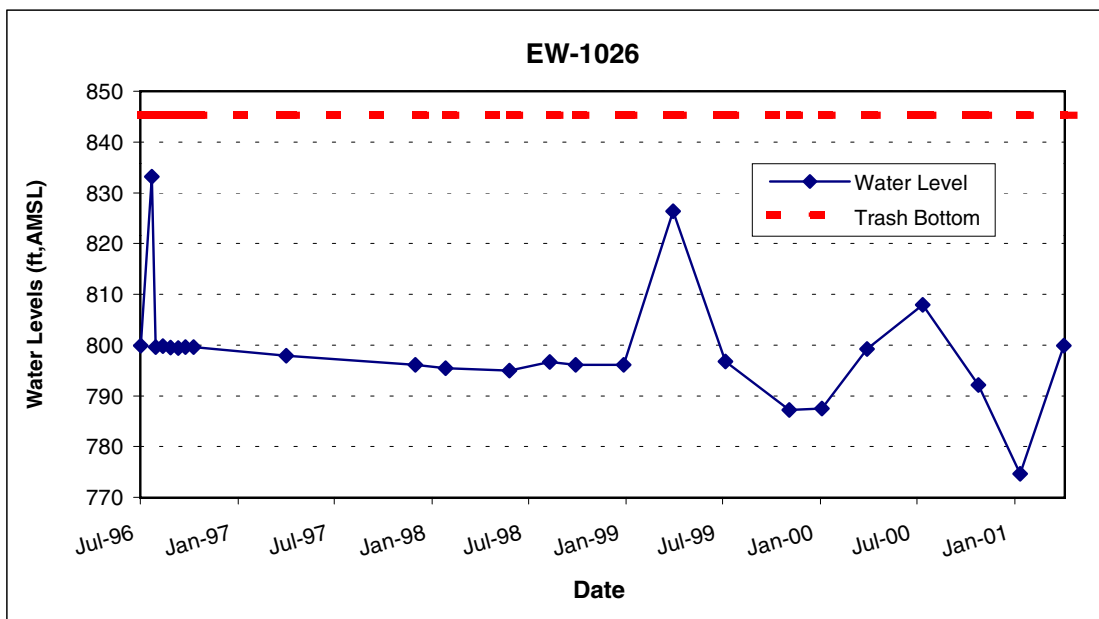
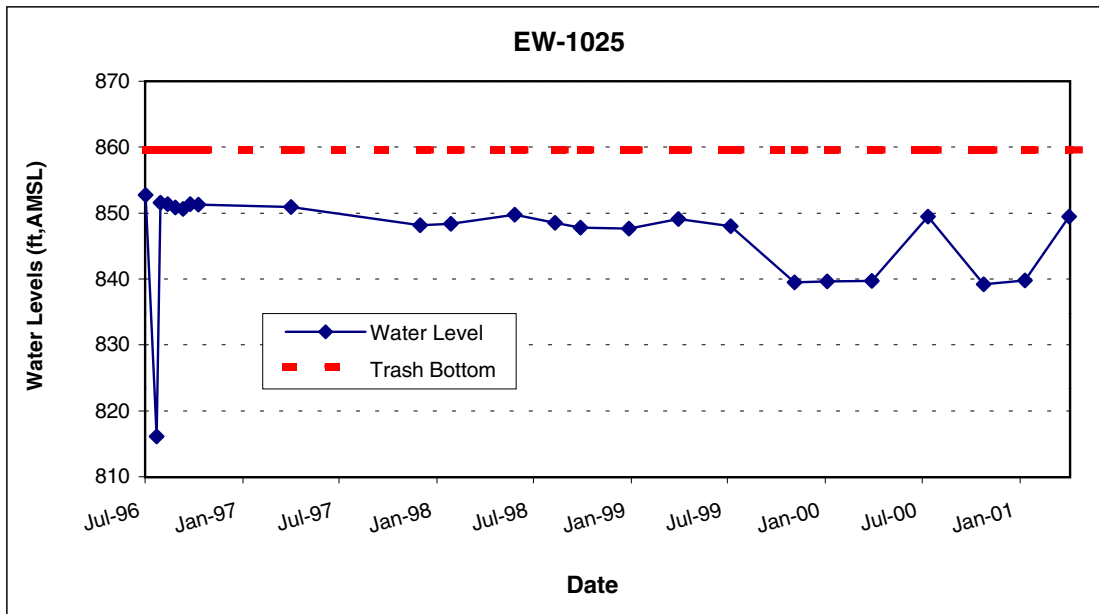
WPAFB - LTM Program

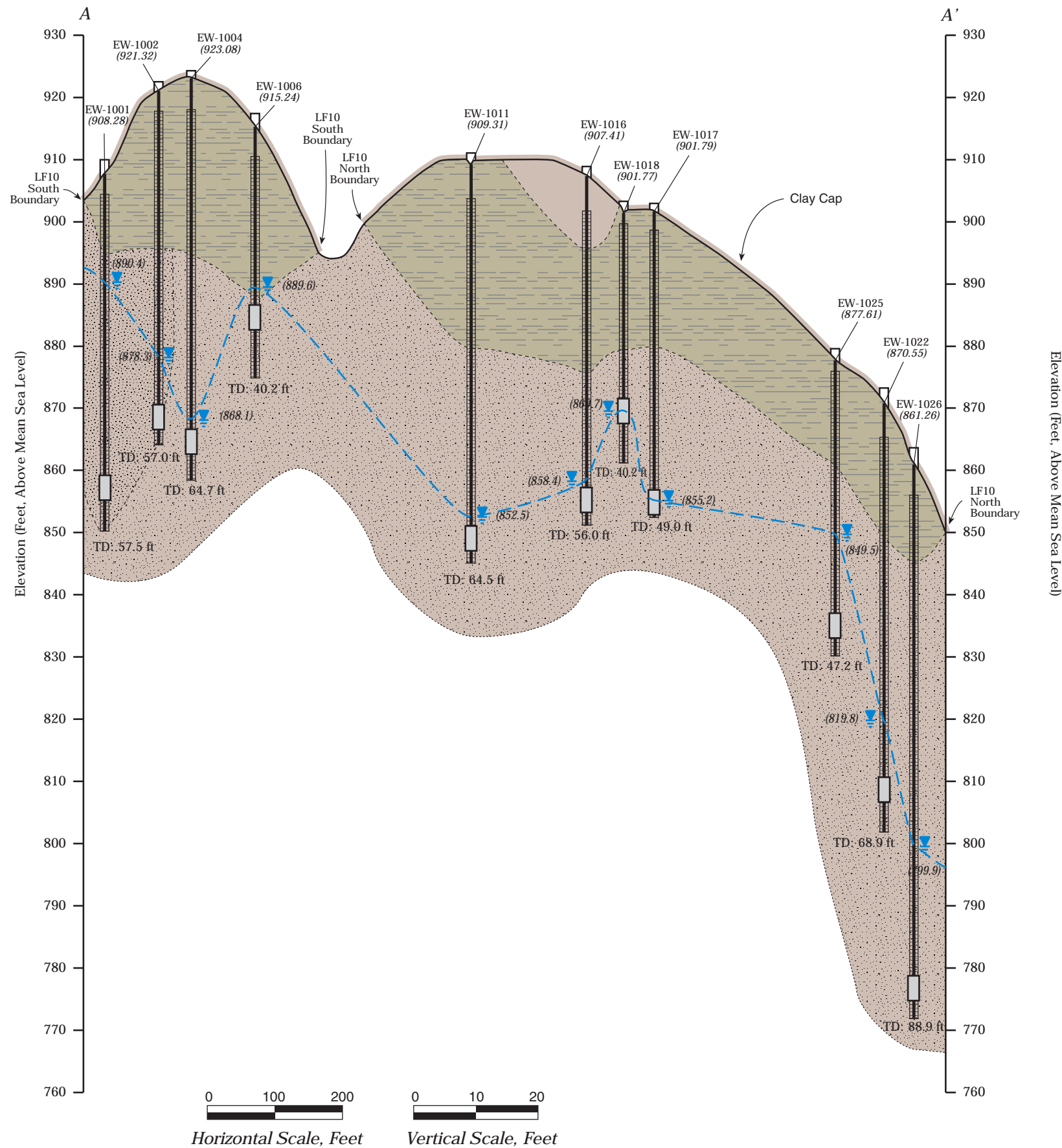


# LANDFILL 10 WATER LEVEL ELEVATION GRAPHS

Extraction Wells: EW-1025 and EW-1026

WPAFB - LTM Program





**Key**

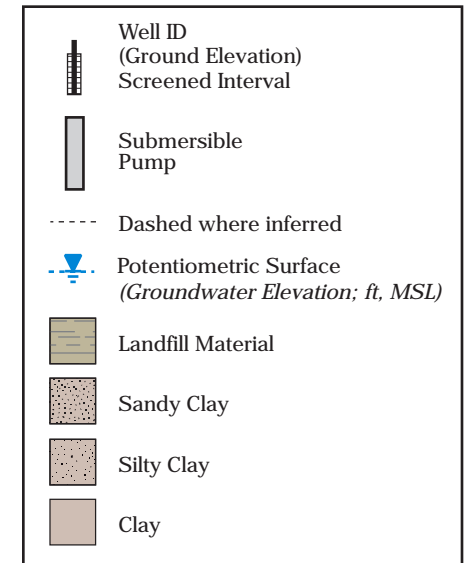
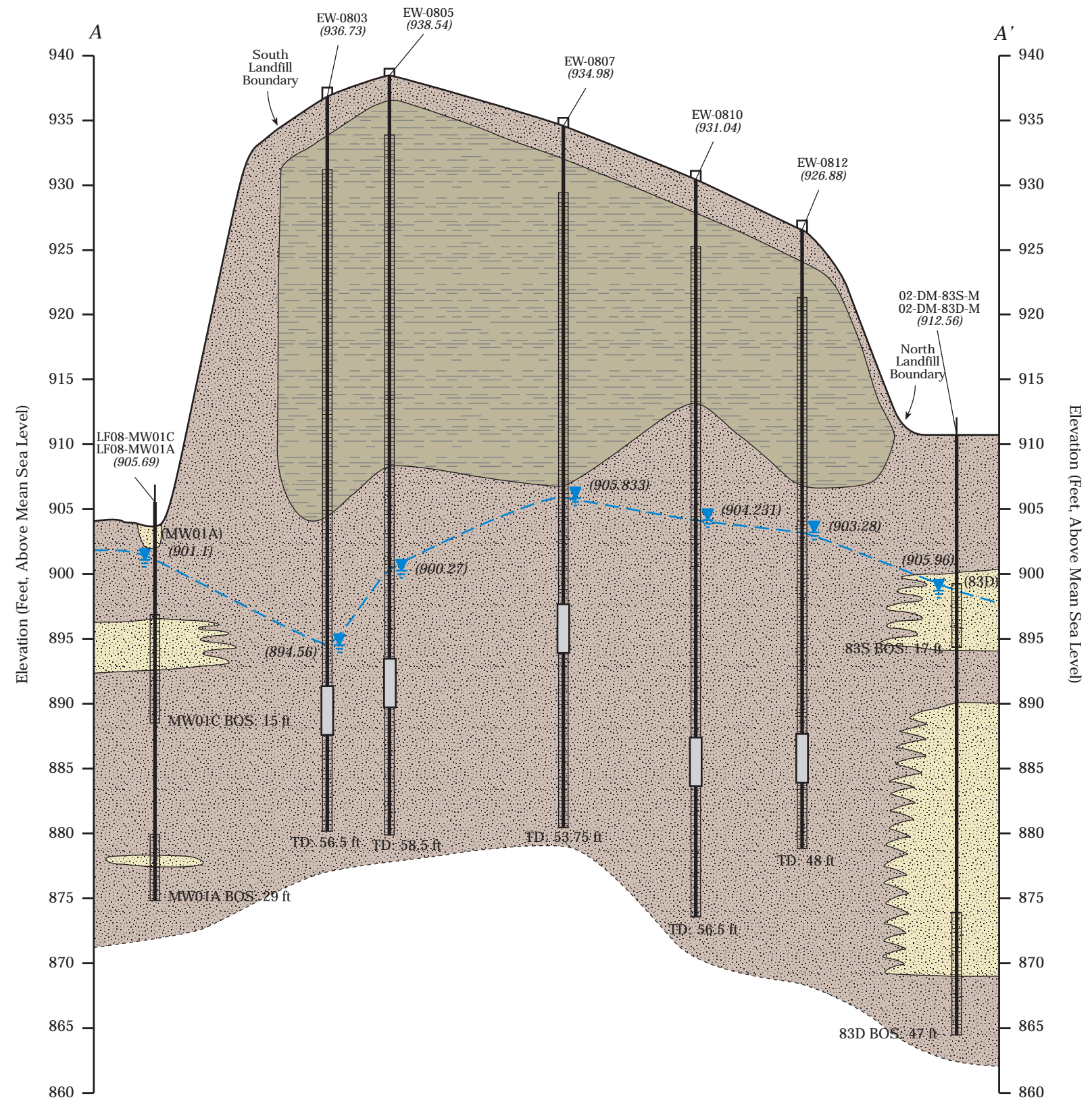


Figure 2-29.  
Landfill 10 Geologic Cross-Section and  
Potentiometric Surface: April 2001



**Key**

- Well ID (Ground Elevation) Screened Interval
- Submersible Pump
- BOS Depth to Bottom of Screen (ft, BGS)
- Dashed where inferred
- Potentiometric Surface (Groundwater Elevation; ft, MSL)
- Landfill Material
- Clays and Silts
- Sands and Gravels

Figure 2-30.  
Landfill 8 Geologic Cross-Section and Potentiometric Surface: April 2001.



0 100 200  
Horizontal Scale, Feet

0 5 10  
Vertical Scale, Feet

DRAWING NO.	S-777097.0006-900-1W		
	7/11/01		
CHECKED BY	MWC		
	7/11/01	APPROVED BY	
DRAWING BY	JIS, III		
	7/11/01		

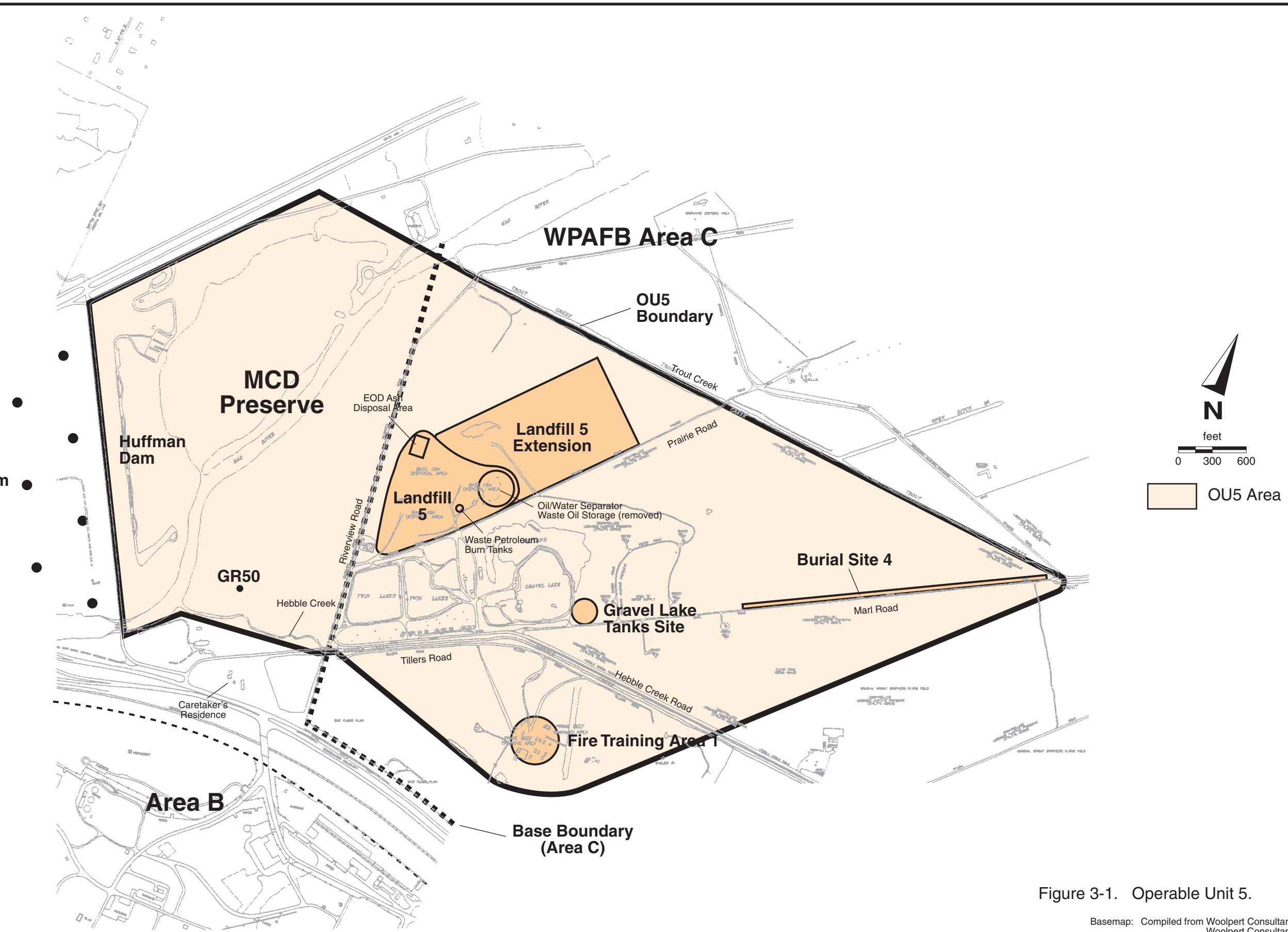


Figure 3-1. Operable Unit 5.

Basemap: Compiled from Woolpert Consultants 1987  
 Woolpert Consultants 1991  
 Henderson Aerial Surveys, Inc. 1993

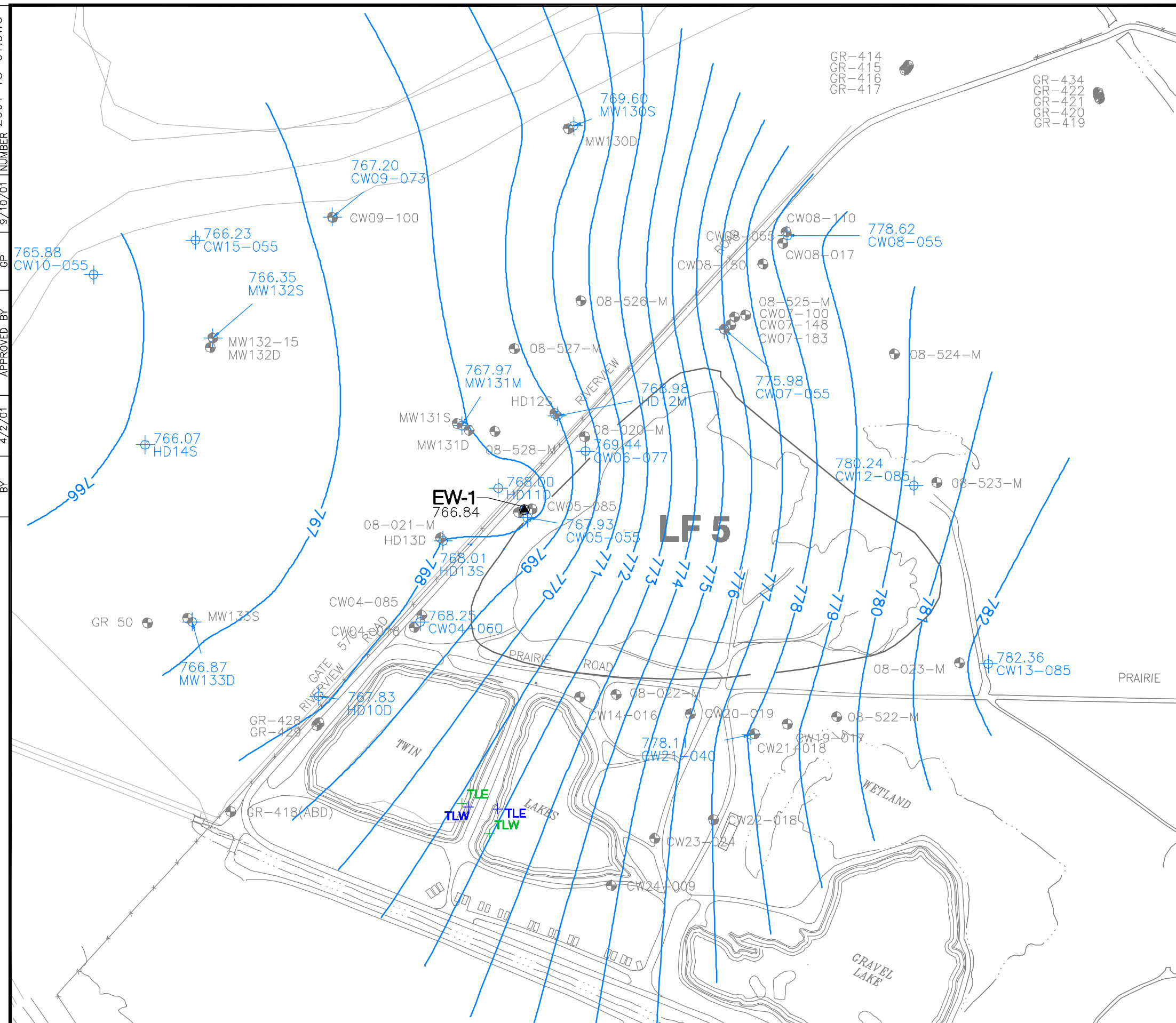


DRAWING NO.	S-777097-4/94-W	
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CHECKED BY	PCM	
	4/27/94	2/1/95
APPROVED BY	SWS	
	4/27/94	2/1/95
DRAWING BY	JIS, III	
	4/27/94	2/1/95





DRAWN BY	MSN 4/2/01	CHECKED BY	MC GP	9/10/01 9/10/01	DRAWING NUMBER	2001 15-01.DWG
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LEGEND:



MONITORING WELL FOR LF5 HYDRAULIC  
CONTAINMENT MONITORING



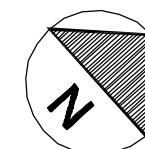
EXTRACTION WELL



— GROUNDWATER ELEVATION  
CONTOUR (ft, msl)



IRP SITES (LOCATIONS APPROXIMATE)



**Figure 3-4  
LF5 Groundwater Elevation  
Contour Map  
January 26, 2001**

PREPARED FOR





**Wright-Patterson Air Force Base  
Dayton, Ohio**

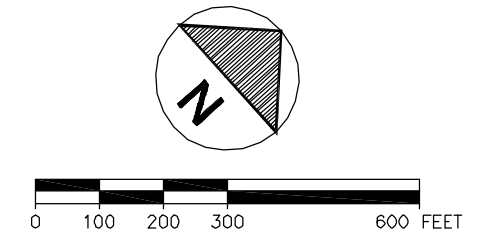


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**LEGEND:**


-  MONITORING WELL FOR LF5 HYDRAULIC CONTAINMENT MONITORING
-  EXTRACTION WELL
-  780 GROUNDWATER ELEVATION CONTOUR (ft, msl)
-  IRP SITES (LOCATIONS APPROXIMATE)

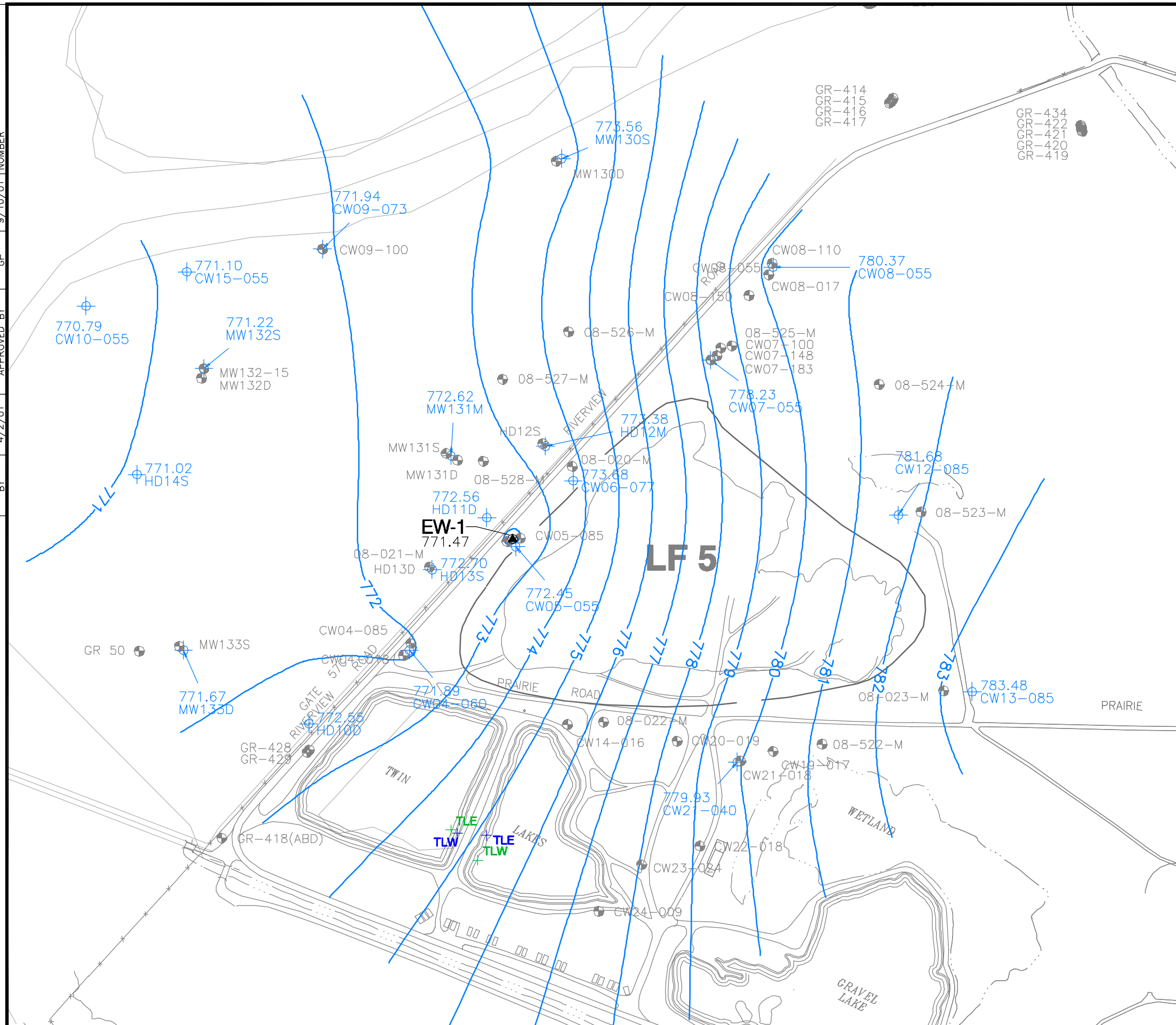


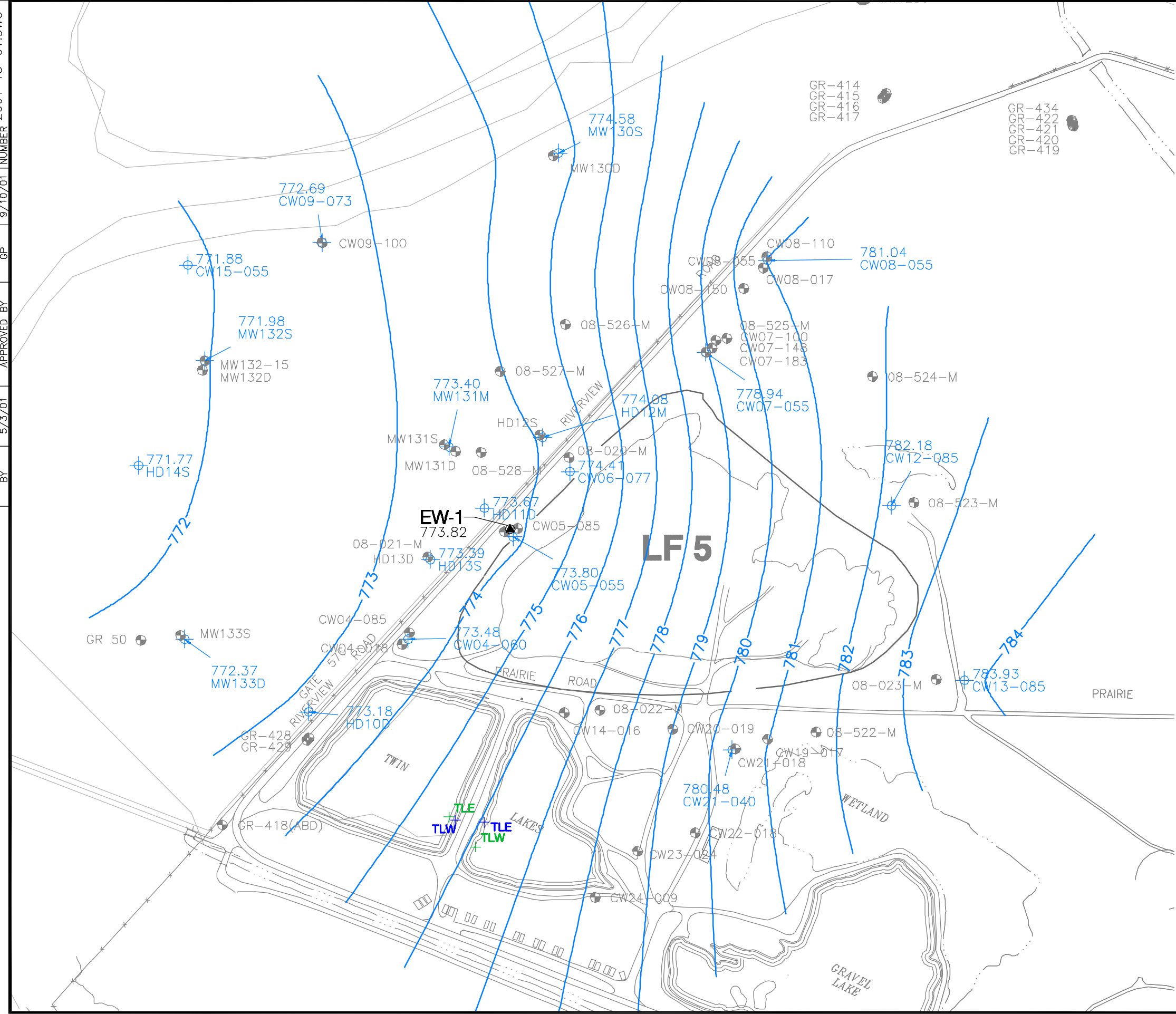
**Figure 3-6**  
**LF5 Groundwater Elevation**  
**Contour Map**  
**March 21, 2001**

PREPARED FOR

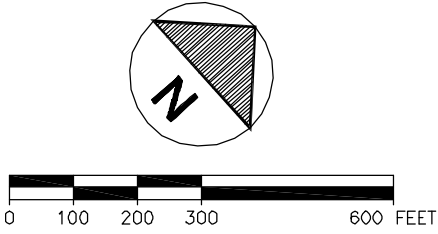
**Wright-Patterson Air Force Base**  
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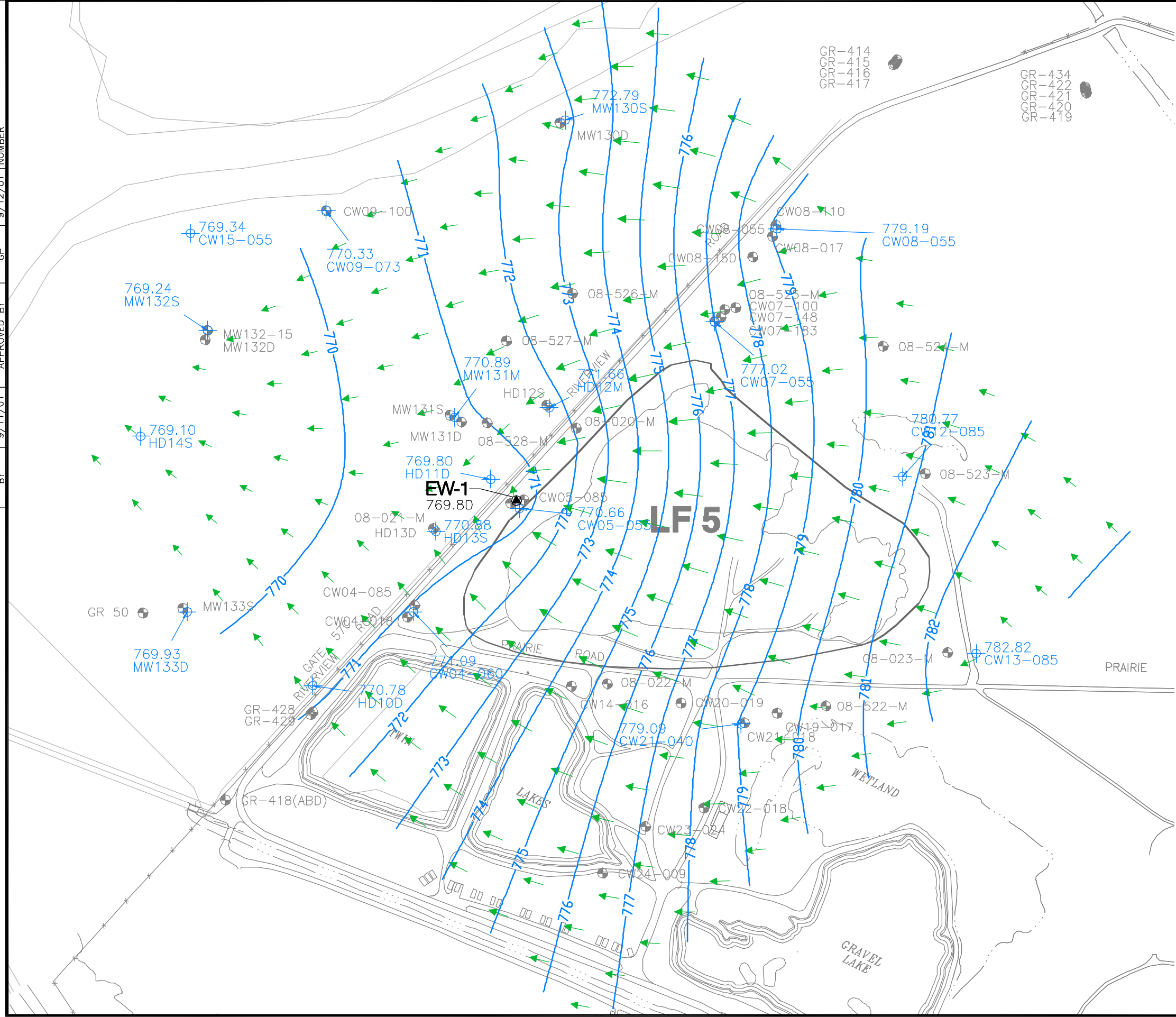


- MONITORING WELL FOR LF5 HYDRAULIC CONTAINMENT MONITORING
- EXTRACTION WELL
- GROUNDWATER ELEVATION CONTOUR (ft, msl)
- IRP SITES (LOCATIONS APPROXIMATE)








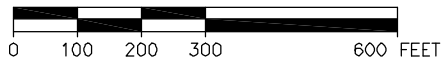
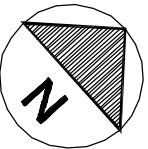
PREPARED FOR





**LEGEND:**

-  MONITORING WELL FOR LF5 HYDRAULIC CONTAINMENT MONITORING
-  EXTRACTION WELL
-  780 GROUNDWATER ELEVATION CONTOUR (ft, msl)
-  GROUNDWATER FLOW VELOCITY VECTOR
-  IRP SITES (LOCATIONS APPROXIMATE)



**Figure 3-8**  
**LF5 Velocity Vector Plot:**  
**November 15, 2000**

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**Dayton, Ohio**

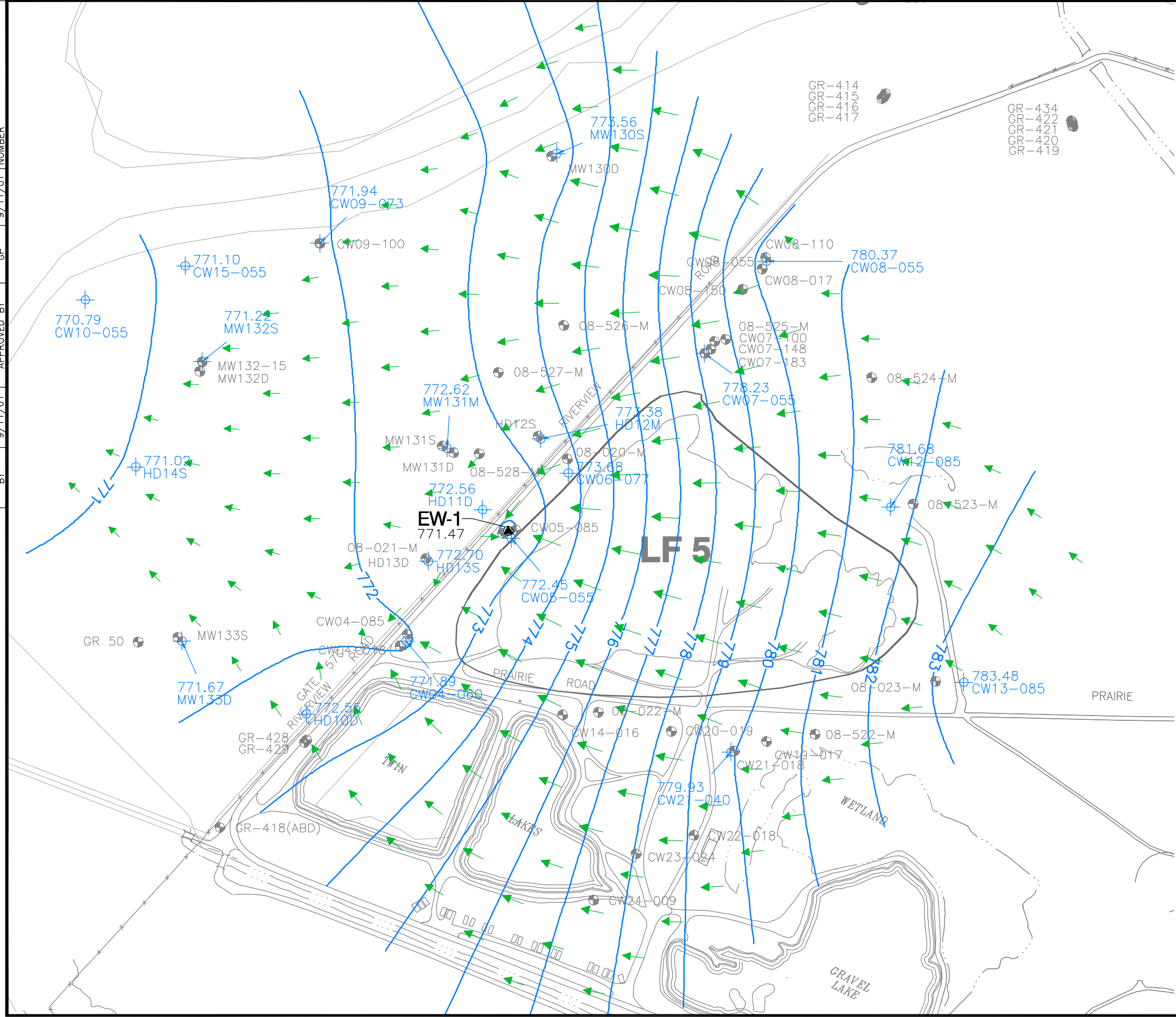


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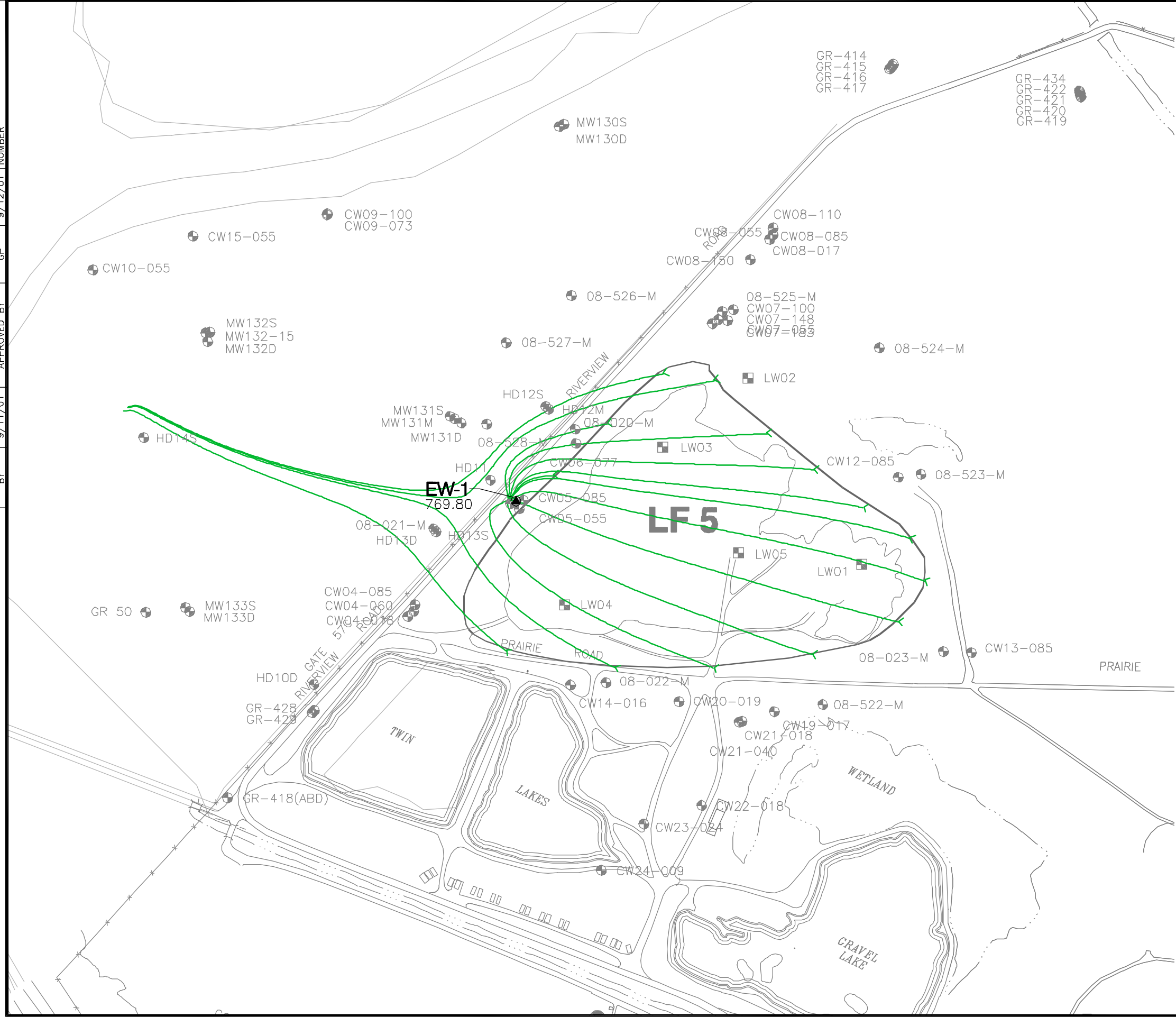










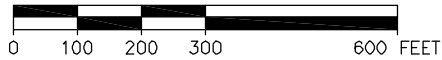
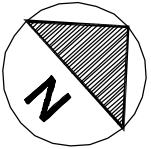






**LEGEND:**

-  MONITORING WELL FOR LF5 HYDRAULIC CONTAINMENT MONITORING
-  EXTRACTION WELL
-  PARTICLE TRACK WITH FLOW DIRECTION
-  IRP SITES (LOCATIONS APPROXIMATE)



**Figure 3-14**  
**LF5 Particle Track Plot:**  
**November 15, 2000**

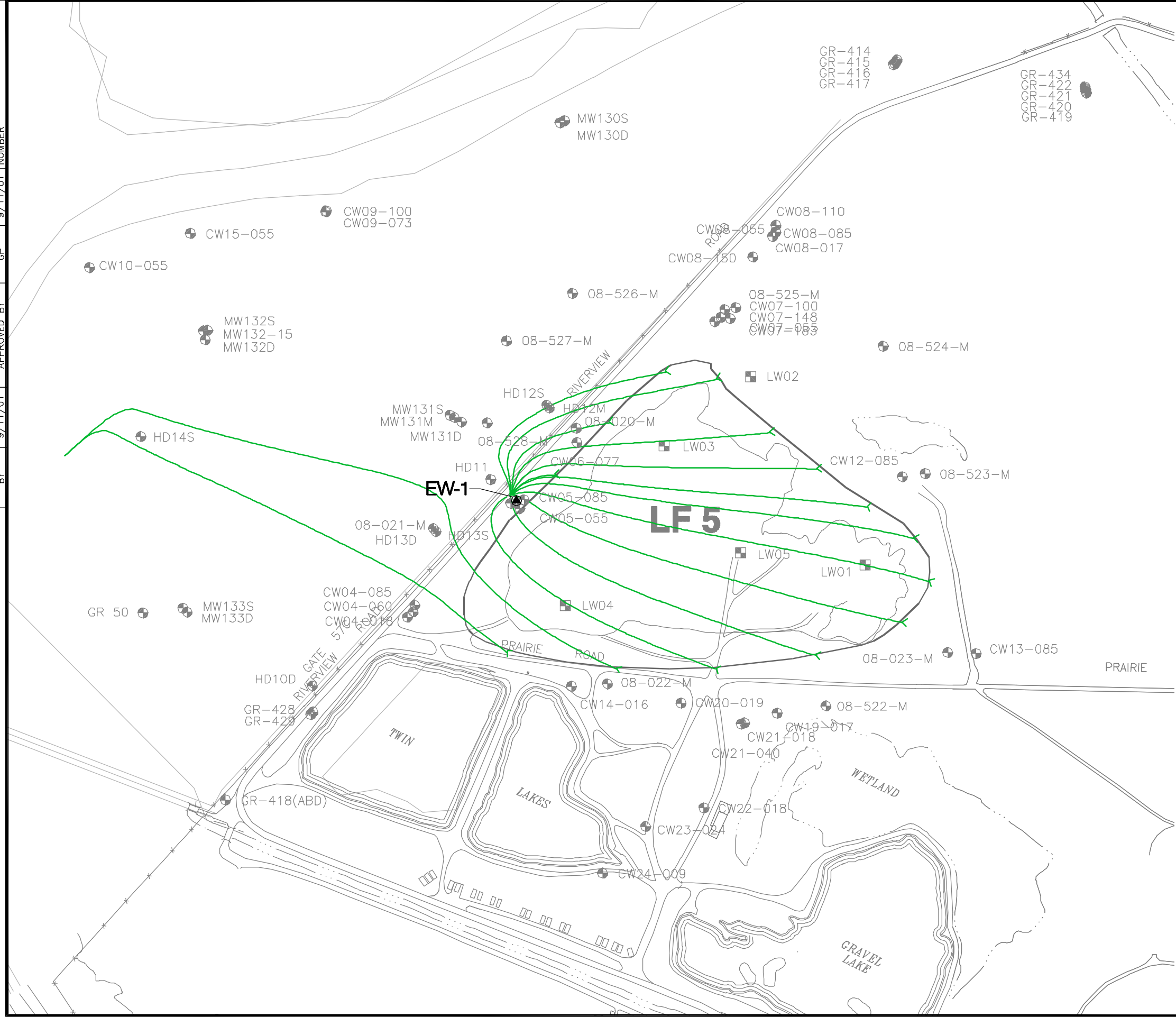
PREPARED FOR

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**Dayton, Ohio**

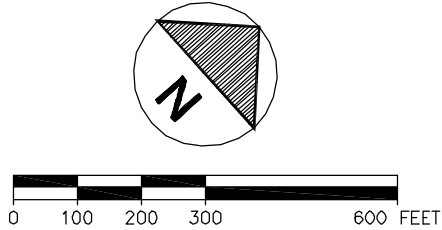


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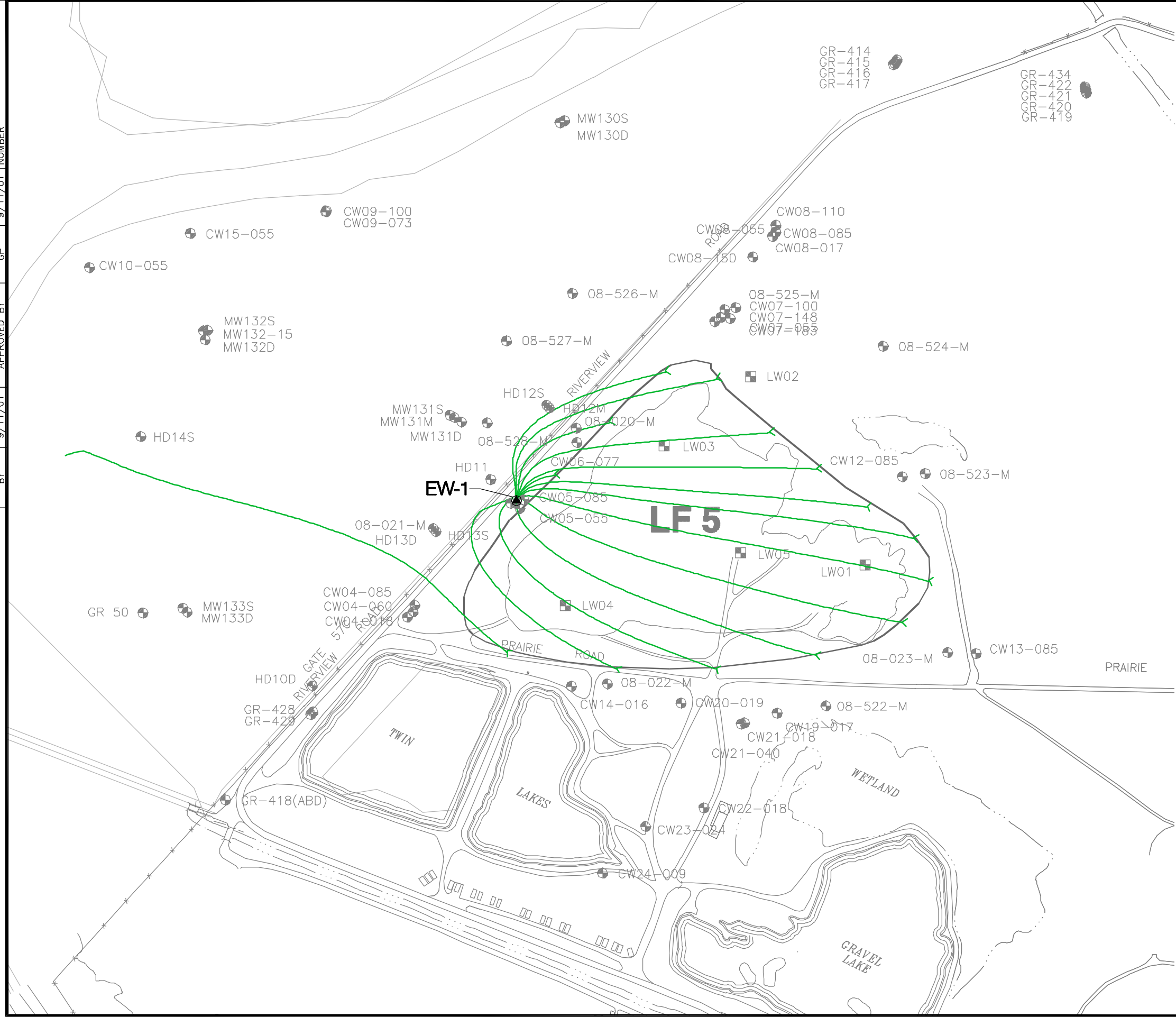
- LEGEND:**
- MONITORING WELL FOR LF5 HYDRAULIC CONTAINMENT MONITORING
  - EXTRACTION WELL
  - PARTICLE TRACK WITH FLOW DIRECTION
  - IRP SITES (LOCATIONS APPROXIMATE)



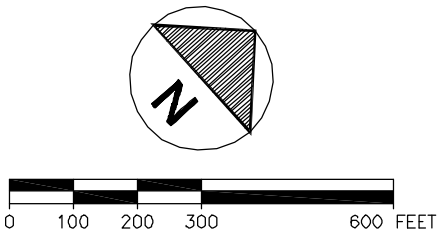
**Figure 3-16**  
**LF5 Particle Track Plot:**  
**January 26, 2001**

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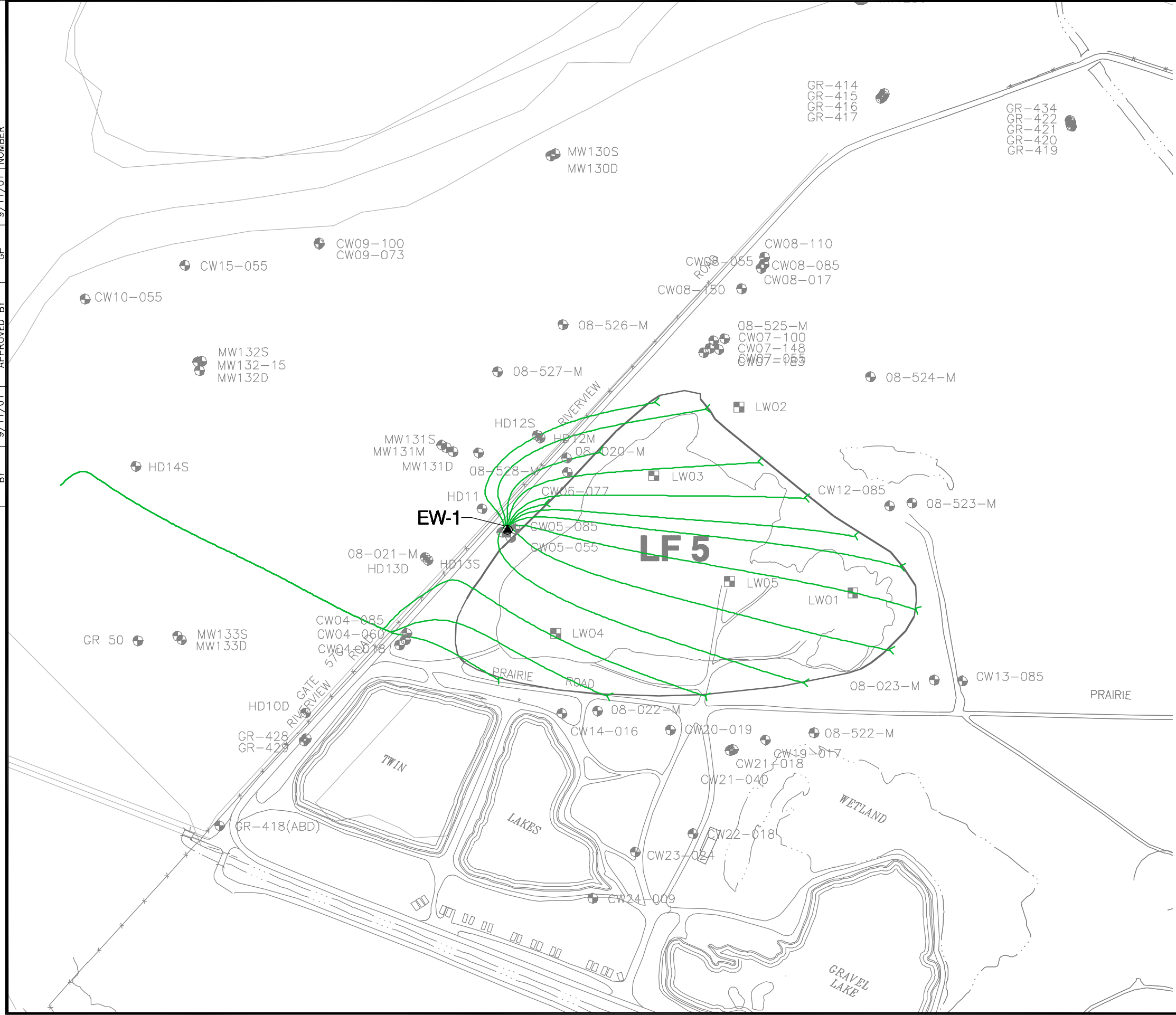
- LEGEND:**
- MONITORING WELL FOR LF5 HYDRAULIC CONTAINMENT MONITORING
  - EXTRACTION WELL
  - PARTICLE TRACK WITH FLOW DIRECTION
  - IRP SITES (LOCATIONS APPROXIMATE)



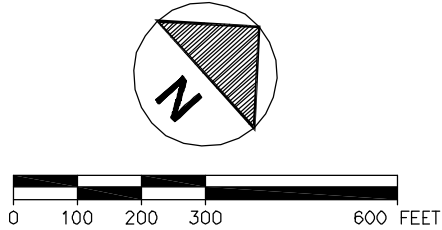
**Figure 3-17**  
**LF5 Particle Track Plot:**  
**February 16, 2001**

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**Dayton, Ohio**

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- LEGEND:**
- MONITORING WELL FOR LF5 HYDRAULIC CONTAINMENT MONITORING
  - EXTRACTION WELL
  - PARTICLE TRACK WITH FLOW DIRECTION
  - IRP SITES (LOCATIONS APPROXIMATE)



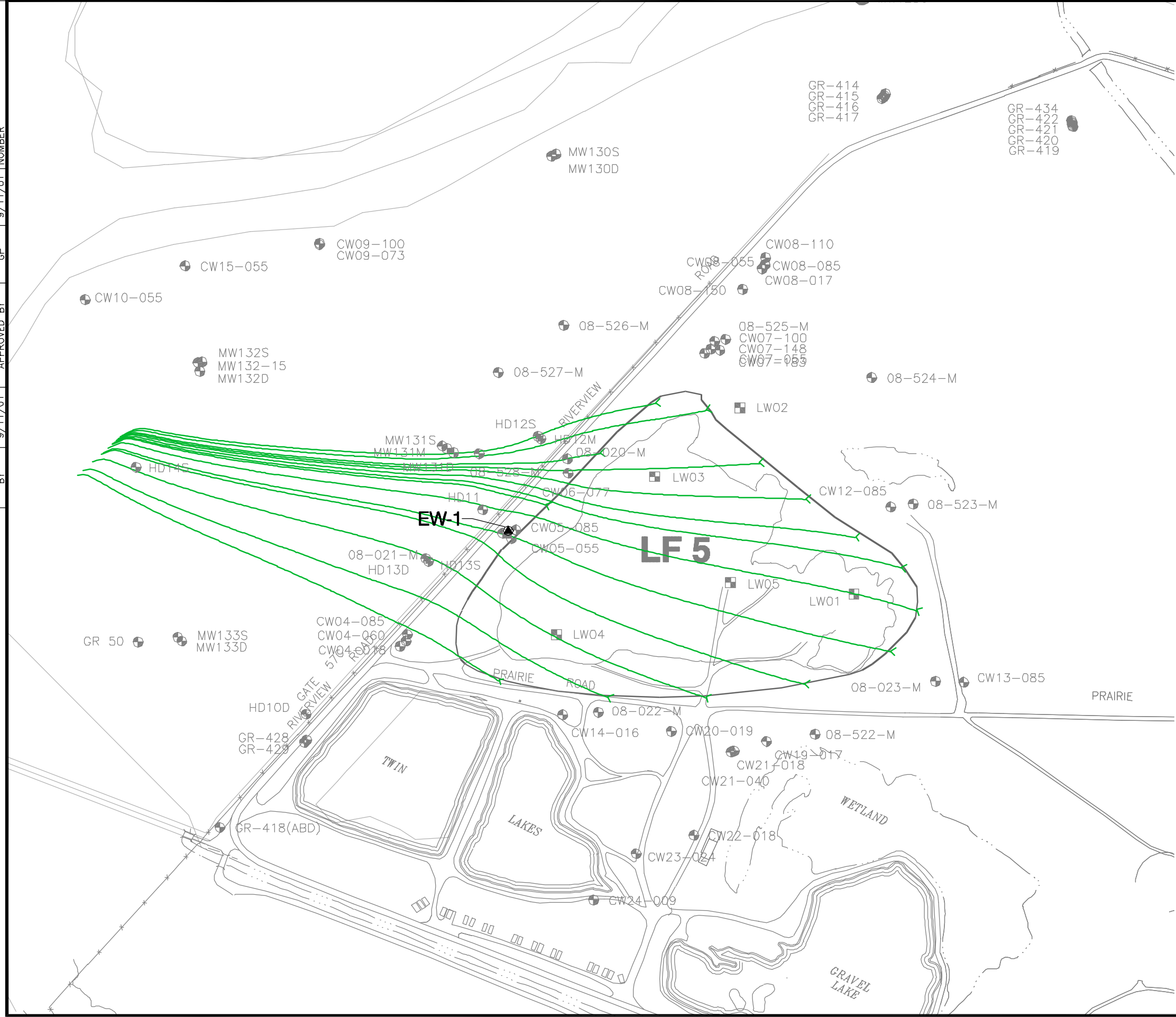
**Figure 3-18**  
**LF5 Particle Track Plot:**  
**March 21, 2001**

PREPARED FOR





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**Dayton, Ohio**

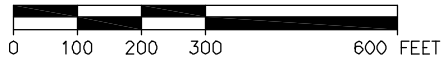
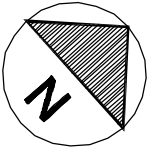


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**LEGEND:**

-  MONITORING WELL FOR LF5 HYDRAULIC CONTAINMENT MONITORING
-  EXTRACTION WELL
-  PARTICLE TRACK WITH FLOW DIRECTION
-  IRP SITES (LOCATIONS APPROXIMATE)



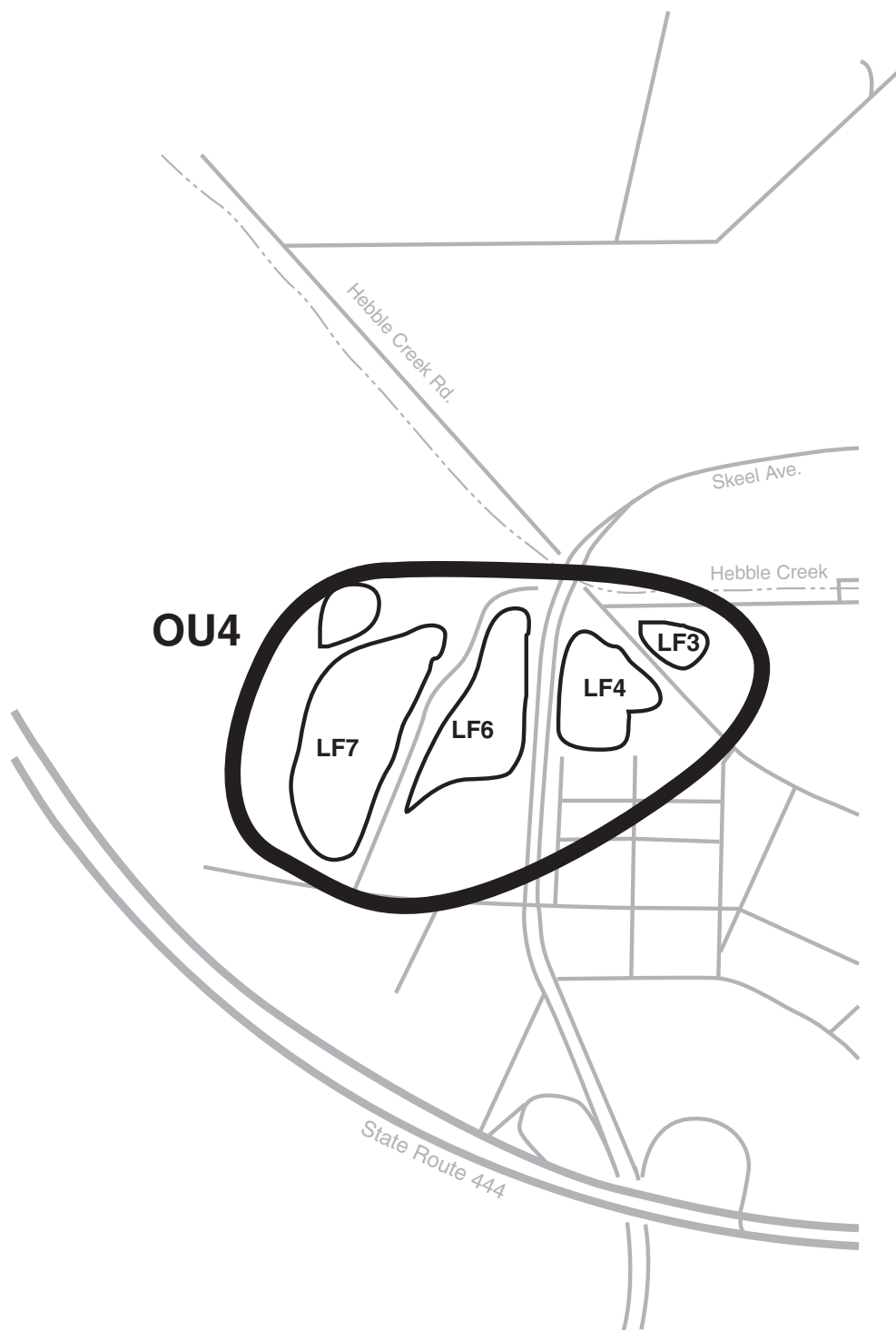
**Figure 3-19**  
**LF5 Particle Track Plot:**  
**April 30, 2001**

PREPARED FOR

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**Dayton, Ohio**



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DRAWING BY	JIS, III	CHECKED BY	MWC	1/26/01	DRAWING NO.
	2/17/99	APPROVED BY	JRT	1/26/01	S-777097-2/99-1w

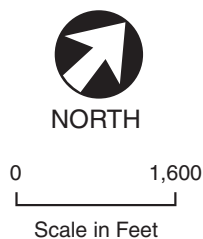
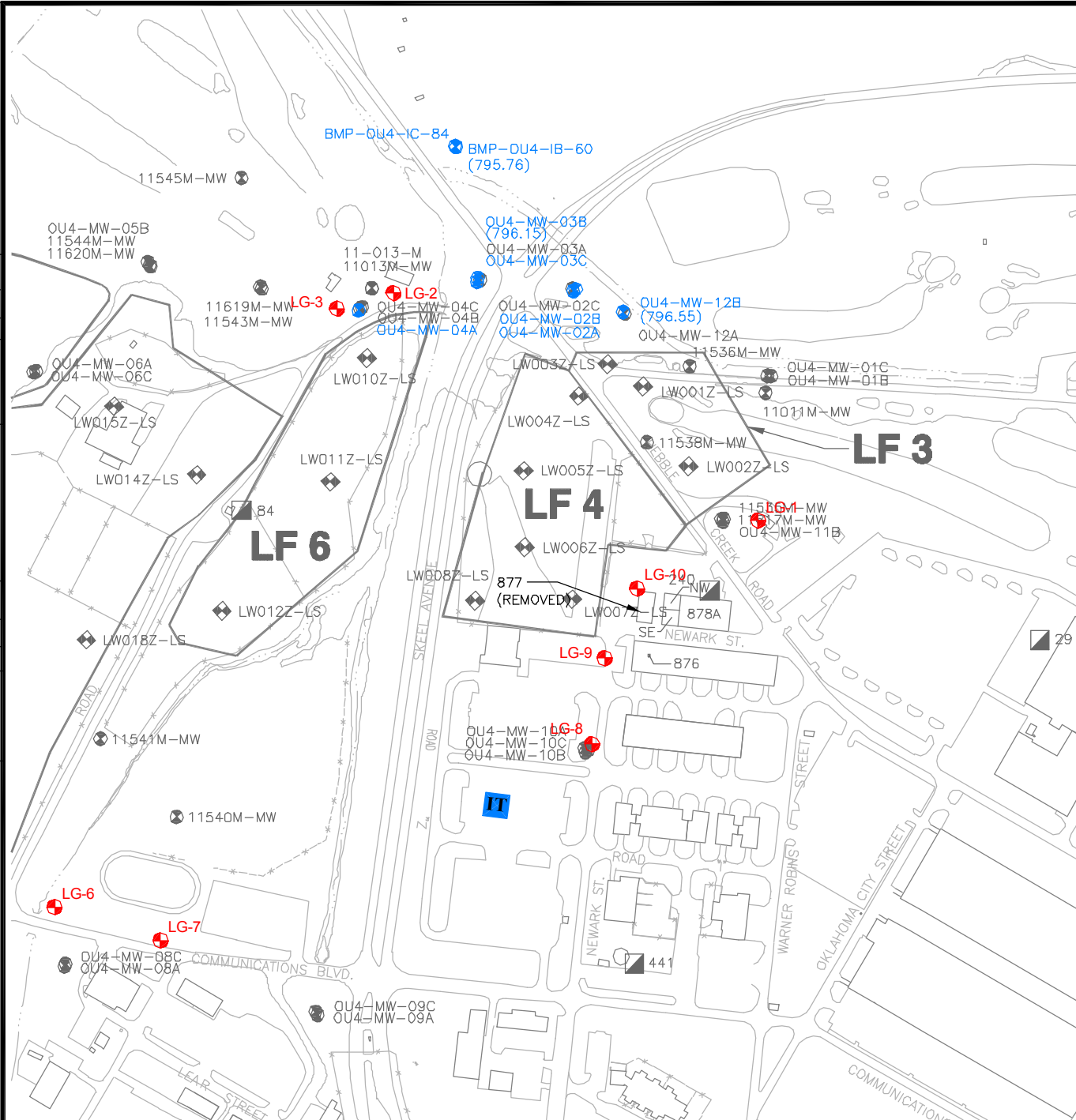


Figure 4-1.  
OU 4 - Landfills 3, 4, 6 and 7.



**Figure 4-2**  
**LANDFILL GAS**  
**MONITORING WELLS: OU4**

PREPARED FOR

**WRIGHT-PATTERSON**  
**AIR FORCE BASE**  
**DAYTON, OHIO**

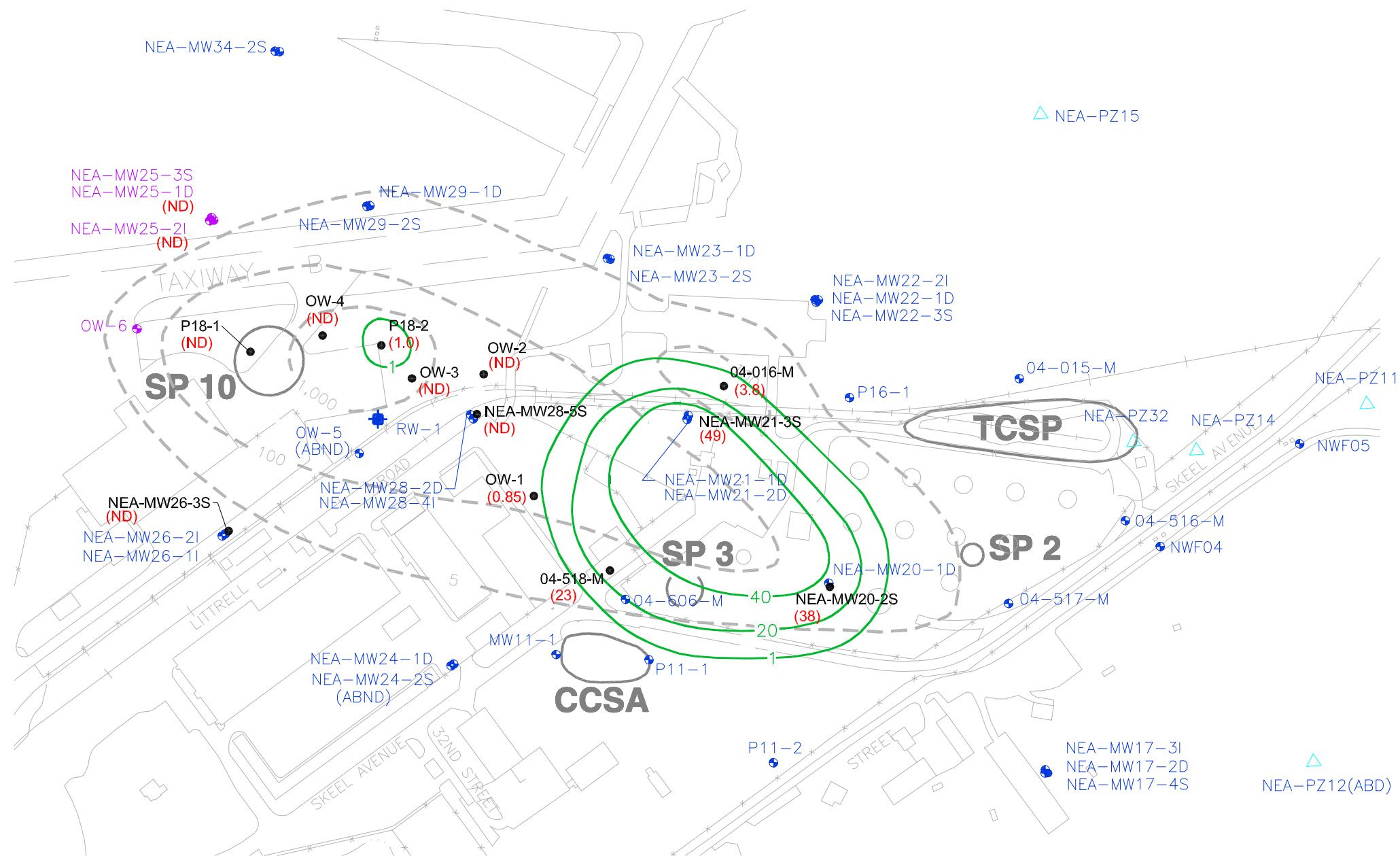


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**LEGEND**

**LG-1**  
LANDFILL GAS MONITORING WELL LOCATIONS

IRP SITES (LOCATIONS APPROXIMATE)



**LEGEND:**

- GROUNDWATER MONITORING WELLS
- GROUNDWATER MONITORING WELLS SAMPLED DURING SUCCESSIVE MONITORING PROGRAM.

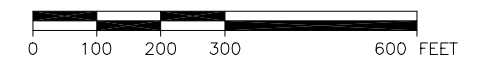
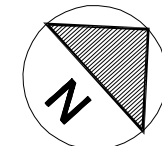
(3.8) ROUND 8 BENZENE GROUNDWATER CONCENTRATION, ( $\mu\text{g/L}$ )

— 20 — ROUND 8 BENZENE ISOPLETH, ( $\mu\text{g/L}$ ) (DASHED WHERE INFERRED)

— 5 — 1991-1992 BENZENE ISOPLETH, ( $\mu\text{g/L}$ )

(ND) NOT DETECTED

NOTE: 1. ALL WELLS SHOWN IN PURPLE ON FIGURE WILL BE SAMPLED PERIODICALLY.



**Figure 5-1**

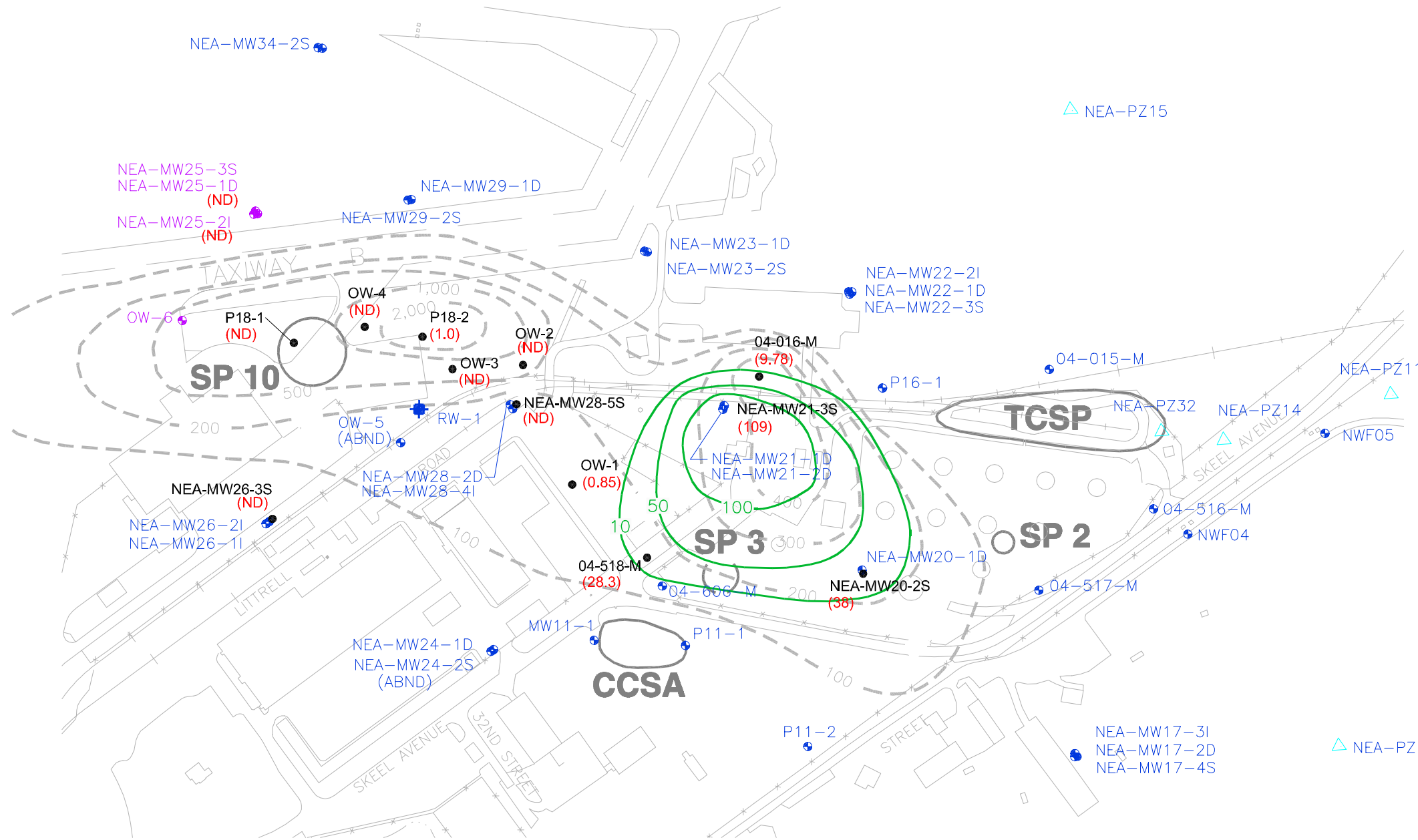
**Round 8 Groundwater Monitoring  
Results: Benzene  
OU2 Area, April 2001**

PREPARED FOR

**Wright-Patterson Air Force  
Base Dayton, Ohio**



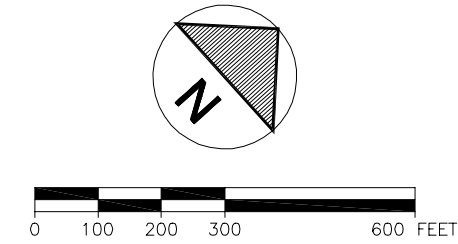
IT CORPORATION  
11499 CHESTER ROAD  
CINCINNATI, OHIO 45246



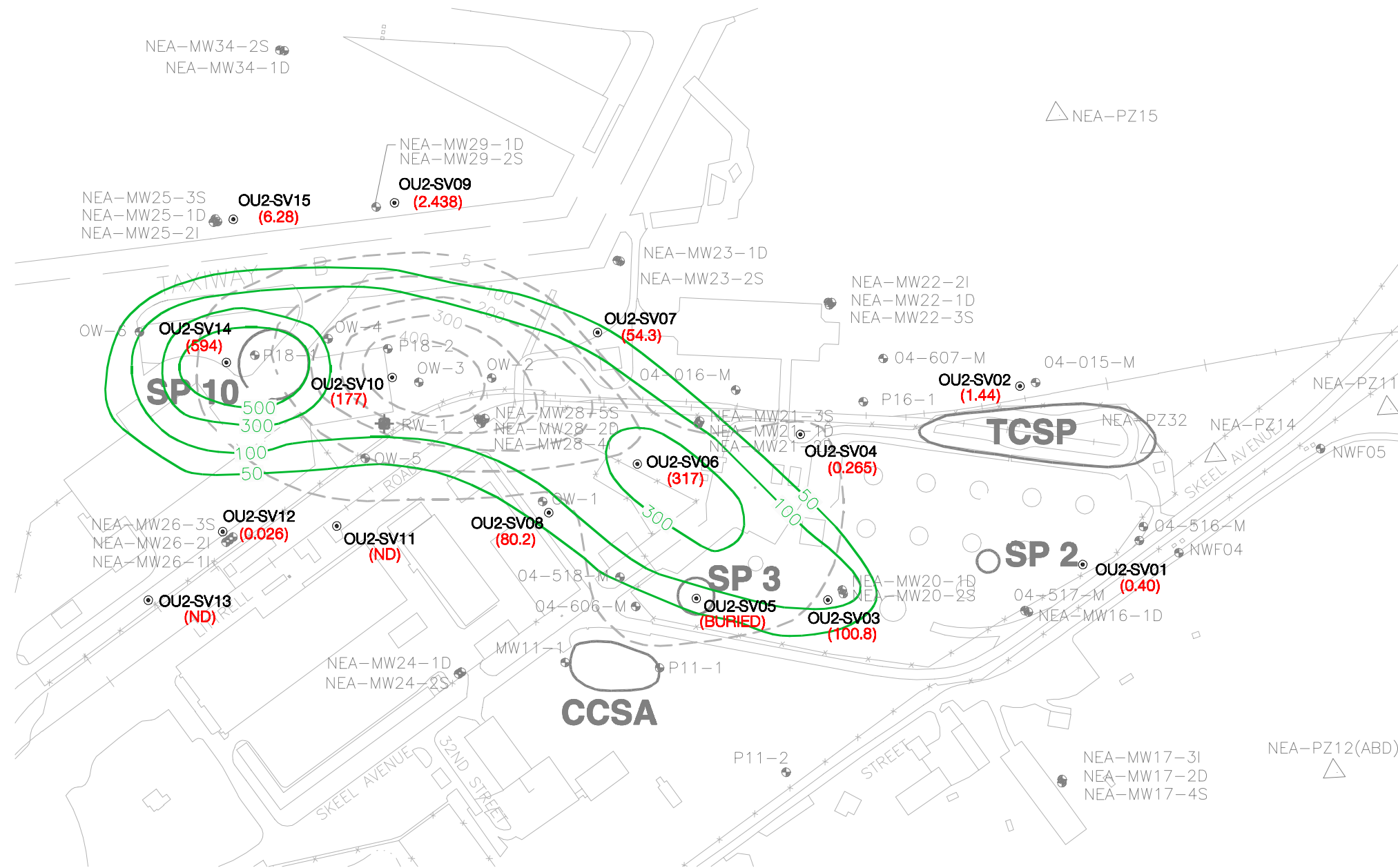
**LEGEND:**

- GROUNDWATER MONITORING WELLS
- GROUNDWATER MONITORING WELLS SAMPLED DURING SUCCESSIVE MONITORING PROGRAM.
- (9.78) ROUND 8 BTEX GROUNDWATER CONCENTRATION, ( $\mu\text{g/L}$ )
- 100 ROUND 8 BTEX ISOPLETH, ( $\mu\text{g/L}$ ) (DASHED WHERE INFERRED)
- 100 1991-1992 BTEX ISOPLETH, ( $\mu\text{g/L}$ )
- (ND) NOT DETECTED

NOTE: 1. ALL WELLS SHOWN IN PURPLE ON FIGURE WILL BE SAMPLED PERIODICALLY.

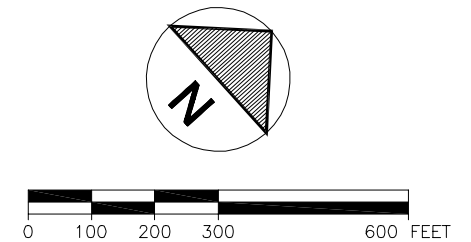


**Figure 5-2**  
**Round 8 Groundwater Monitoring**  
**Results: BTEX (Total)**  
**OU2 Area, April 2001**  
  
PREPARED FOR  
**Wright-Patterson Air Force**  
**Base Dayton, Ohio**



**LEGEND:**

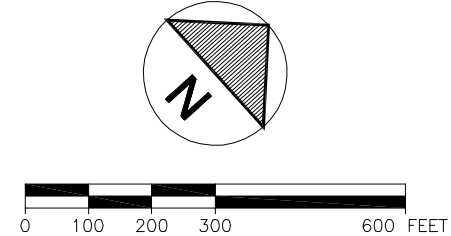
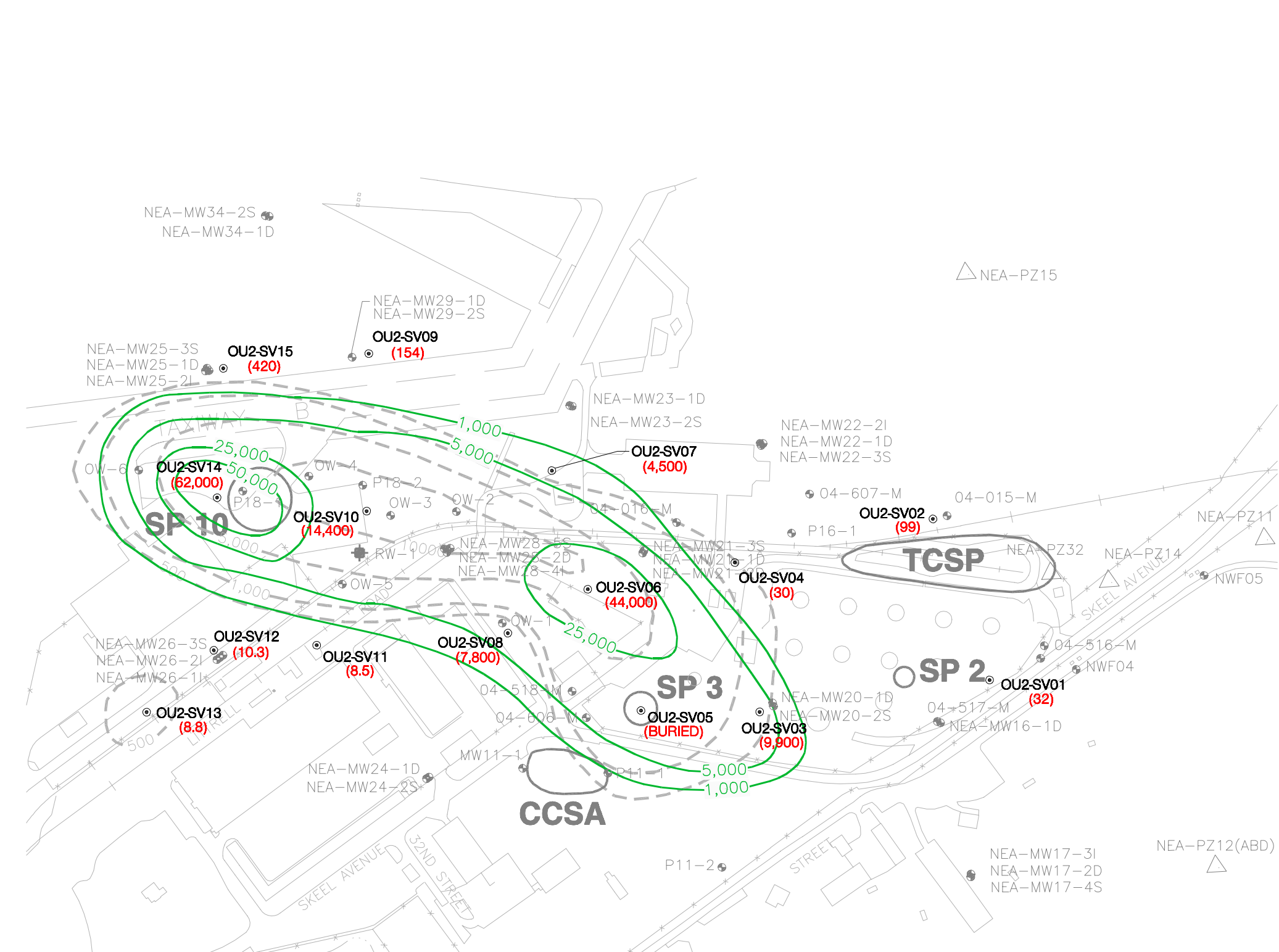
- SOIL VAPOR MONITORING POINTS
- (1.44) ROUND 8 BTEX SOIL VAPOR CONCENTRATIONS, ( $\mu\text{g/L}$ ).
- 100 — ROUND 8 BTEX SOIL VAPOR ISOPLETH, ( $\mu\text{g/L}$ ). (DASHED WHERE INFERRED)
- 200 -- BASELINE BTEX ISOPLETH, ( $\mu\text{g/L}$ ).
- (ND) NOT DETECTED



**Figure 5-3**  
**Round 8 Soil Gas Monitoring**  
**Results: BTEX**  
**OU2 Area, May 2001**  
  
PREPARED FOR  
**Wright-Patterson Air Force**  
**Base Dayton, Ohio**

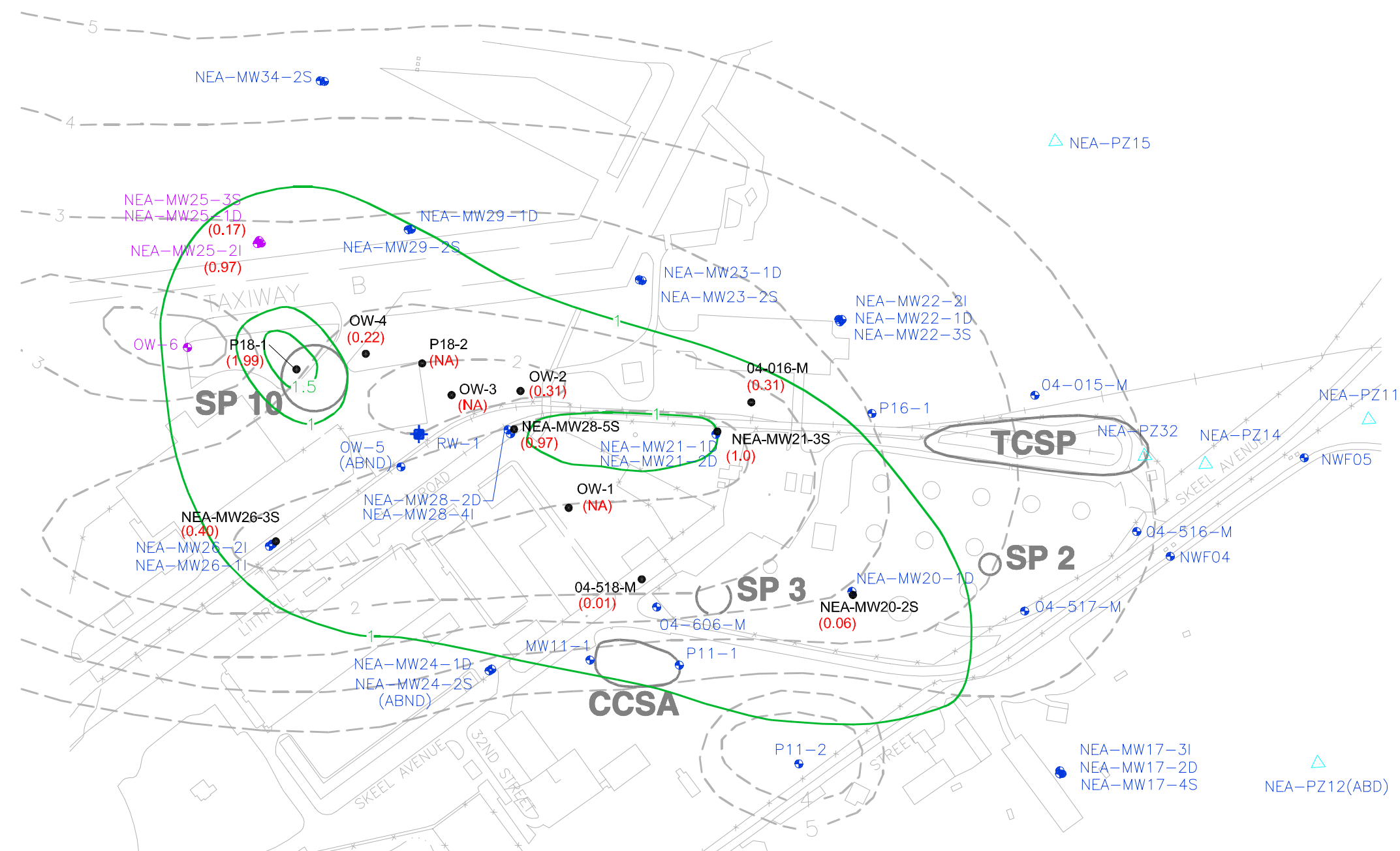


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**Figure 5-4**  
**Round 8 Soil Gas Monitoring**  
**Results: Total Volatile**  
**Hydrocarbons**  
**OU2 Area, May 2001**

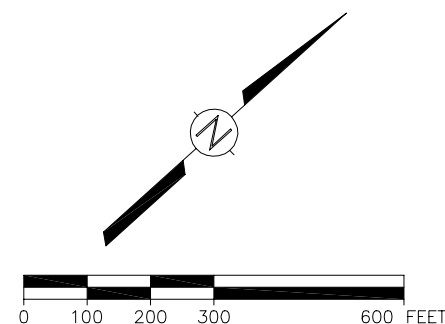
PREPARED FOR  
**Wright-Patterson Air Force**  
**Base Dayton, Ohio**



LEGEND:

- GROUNDWATER MONITORING WELLS
  - GROUNDWATER MONITORING WELLS SAMPLED DURING SUCCESSIVE MONITORING PROGRAM.
- (0.31) ROUND 8 DISSOLVED OXYGEN GROUNDWATER CONCENTRATION, (mg/L.)
- 1 — ROUND 8 DISSOLVED OXYGEN ISOPLETH, (mg/L.) (DASHED WHERE INFERRED)
- 5 — BASELINE DISSOLVED OXYGEN ISOPLETH, (mg/L.)
- (NA) NOT AVAILABLE

NOTE: 1. ALL WELLS SHOWN IN PURPLE  
ON FIGURE WILL BE SAMPLED  
PERIODICALLY.



### Figure 5-5

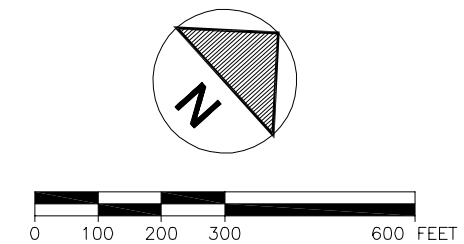
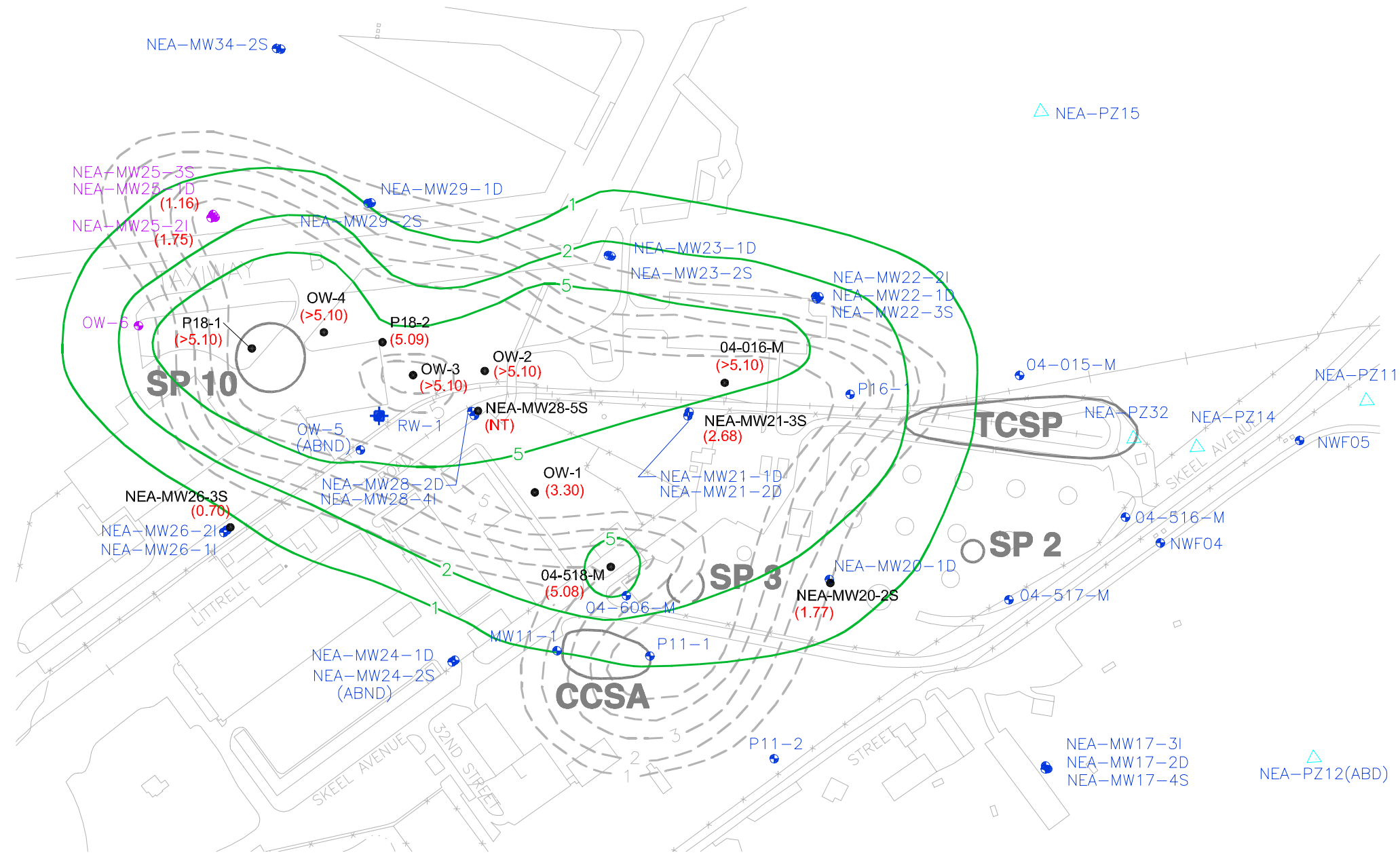
**Round 8 Groundwater Monitoring  
Results: Dissolved Oxygen  
OU2 Area, April 2001**

PREPARED FOR

**Wright-Patterson Air Force Base  
Dayton, Ohio**



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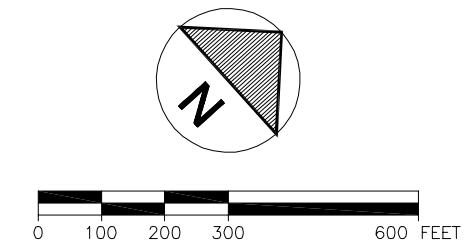
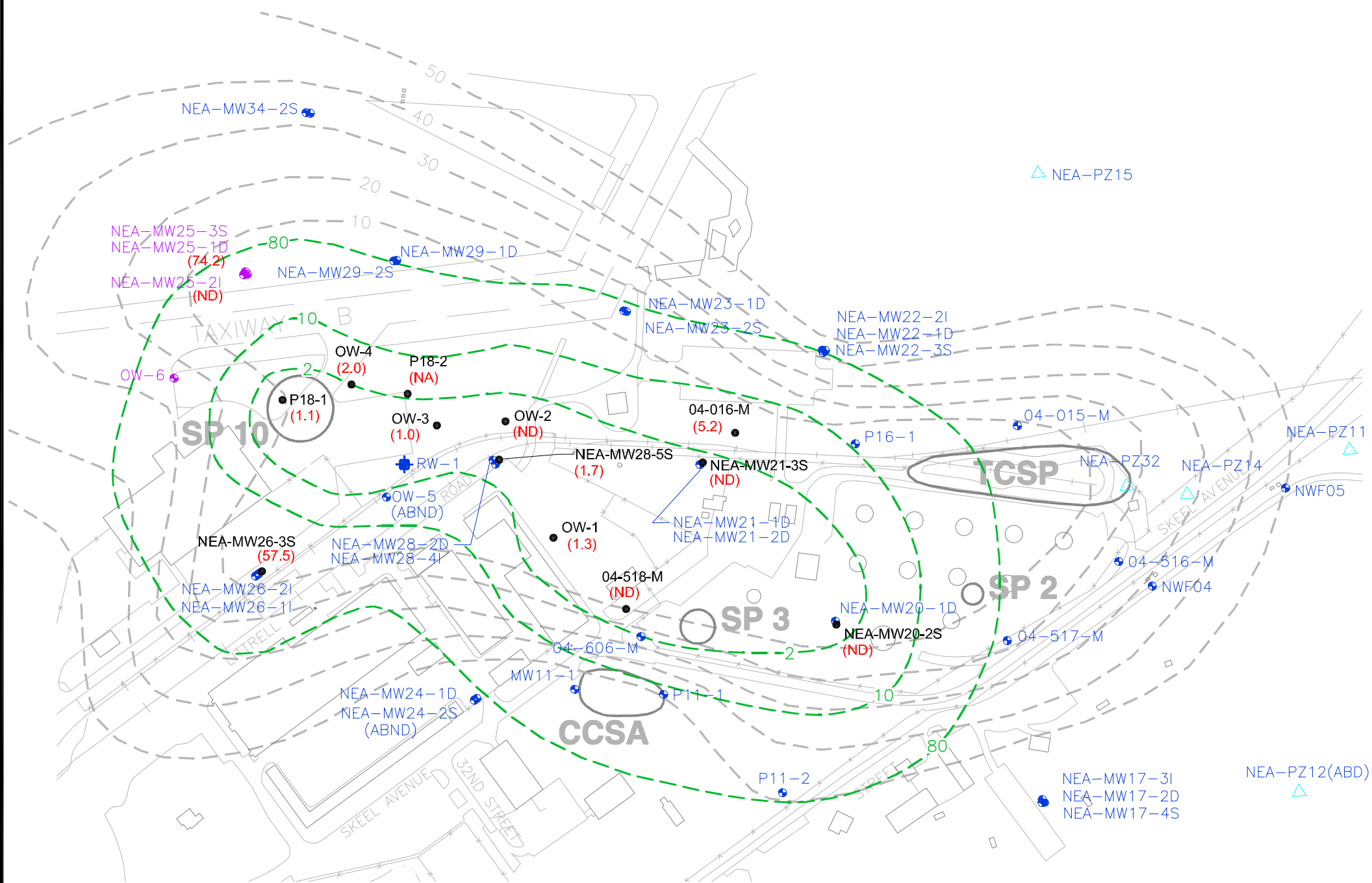


**Figure 5-6**  
**Round 8 Groundwater Monitoring**  
**Results: Ferrous Iron**  
**OU2 Area, April 2001**

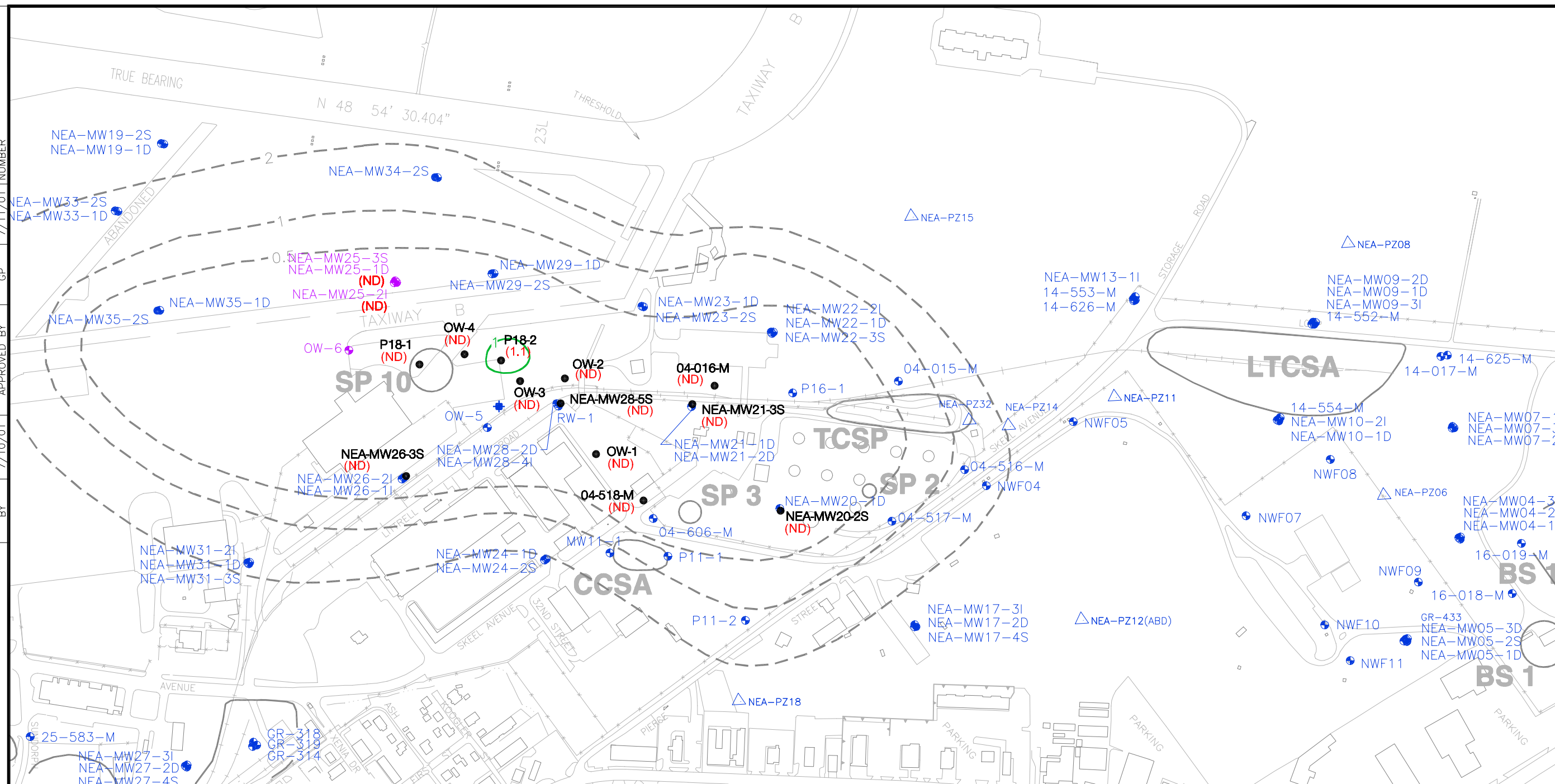
PREPARED FOR  
**Wright-Patterson Air Force Base**  
**Dayton, Ohio**



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**Figure 5-7**  
**Round 8 Groundwater Monitoring**  
**Results: Sulfate**  
**OU2 Area, April 2001**  
  
PREPARED FOR  
**Wright-Patterson Air Force Base**  
**Dayton, Ohio**

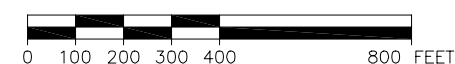
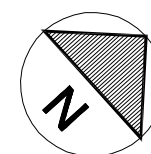


**LEGEND:**

- GROUNDWATER MONITORING WELLS
- GROUNDWATER MONITORING WELLS TO BE SAMPLED DURING SUCCESSIVE MONITORING PROGRAM.
- (1) ROUND 8 NITRATE GROUNDWATER CONCENTRATION, (mg/L).
- 1 — ROUND 8 NITRATE ISOPLETH, (mg/L). (DASHED WHERE INFERRED)
- 1 -- BASELINE NITRATE ISOPLETH, (mg/L).

(ND) NOT DETECTED

NOTES: 1. ALL WELLS SHOWN IN PURPLE  
ON FIGURE WILL BE SAMPLED  
PERIODICALLY.



**Figure 5-8**

**Round 8 Groundwater Monitoring  
Results: Nitrate  
OU2 Area, April 2001**

PREPARED FOR

**Wright-Patterson Air Force Base  
Dayton, Ohio**

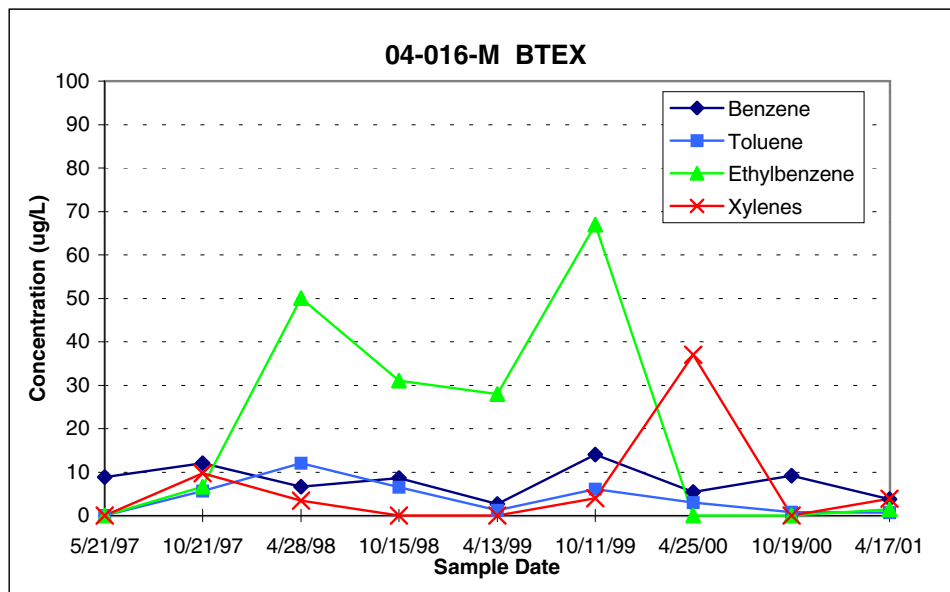
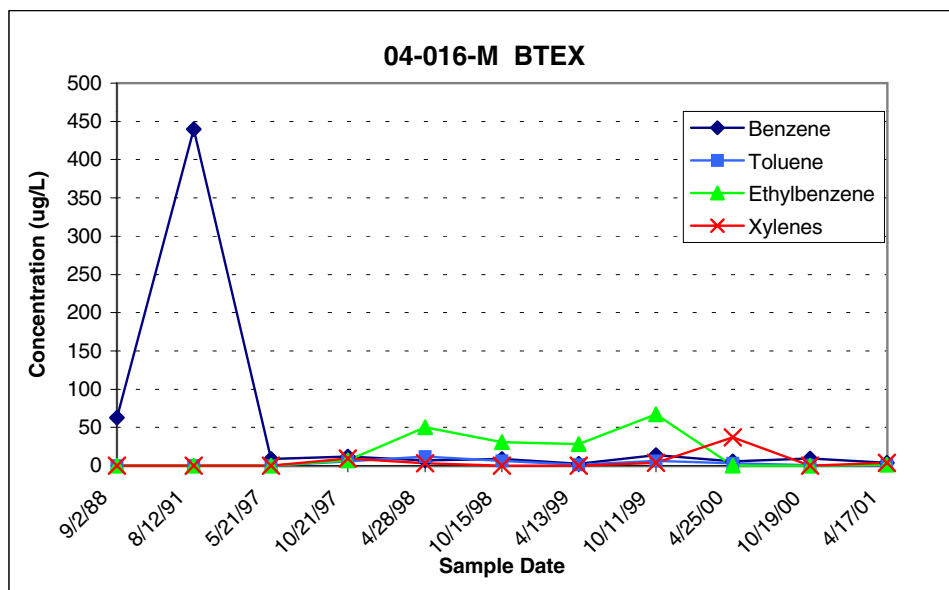


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## OU2 HYDROCARBON CONCENTRATION GRAPHS

WELL: 04-016-M

WPAFB-BMP

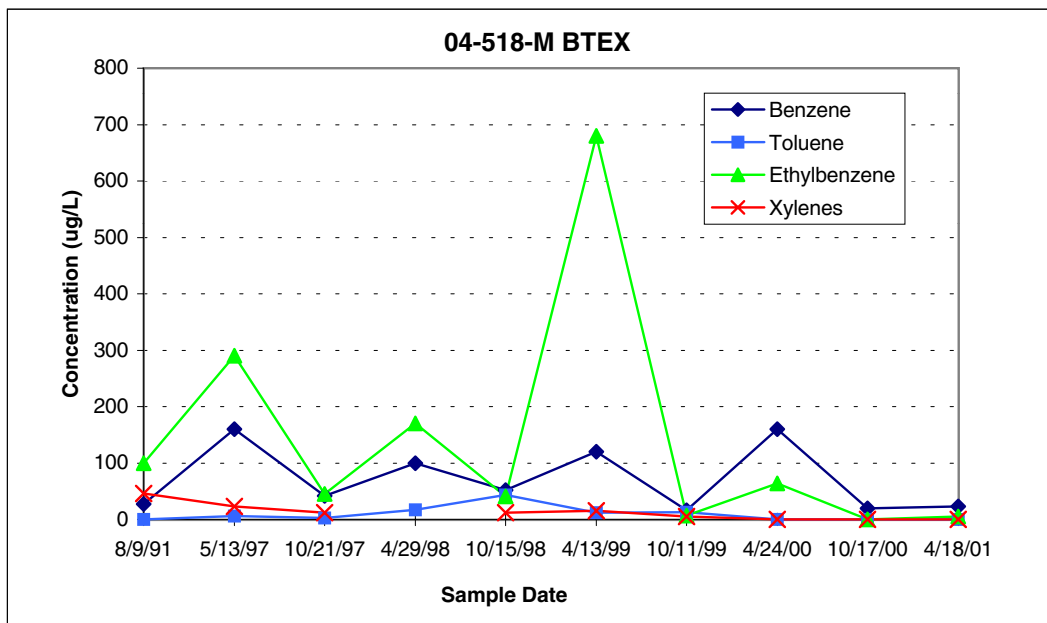
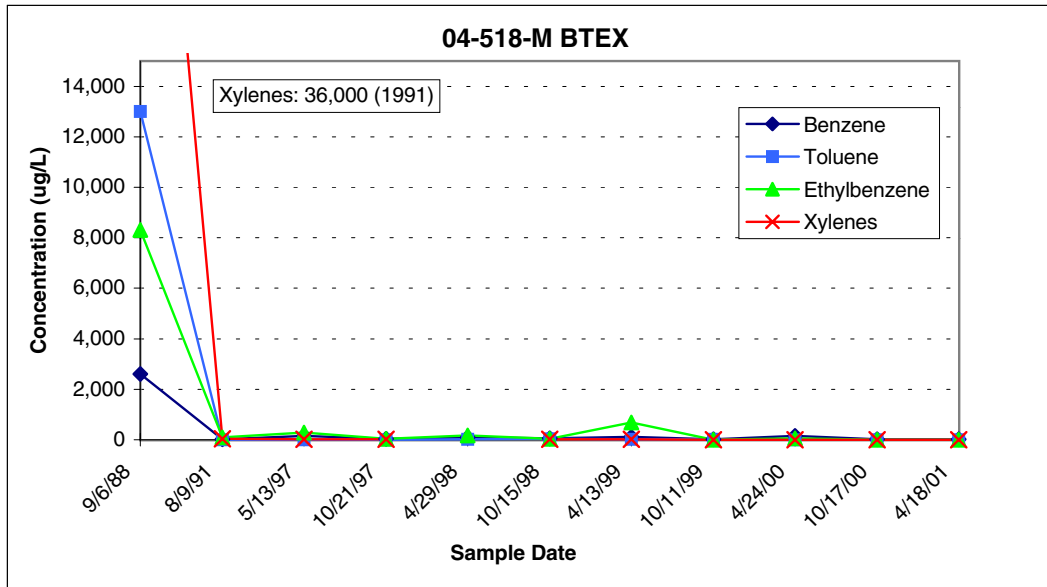


BTEX concentrations from samples after 1991 are plotted on the bottom graph, at a larger scale to show the variations in concentrations.

## OU2 HYDROCARBON CONCENTRATION GRAPHS

WELL: 04-518-M

WPAFB - BMP

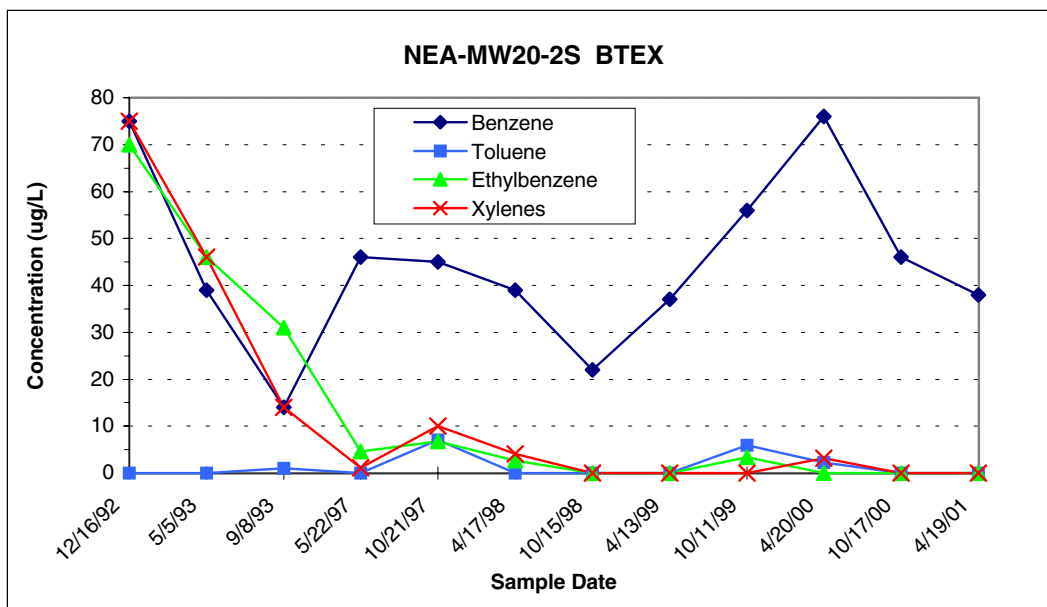


BTEX concentrations from samples after 1988 are plotted on the bottom graph, at a larger scale to show the variations in concentrations.

## OU2 HYDROCARBON CONCENTRATION GRAPHS

WELL: NEA-MW20-2S

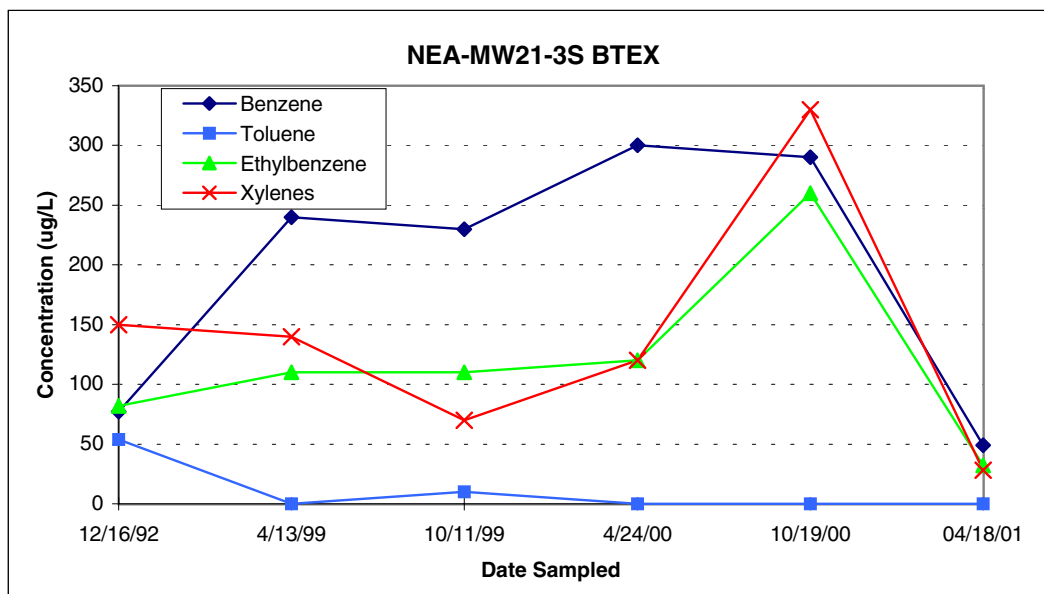
WPAFB - BMP



## OU2 HYDROCARBON CONCENTRATION GRAPHS

WELL: NEA-MW21-3S

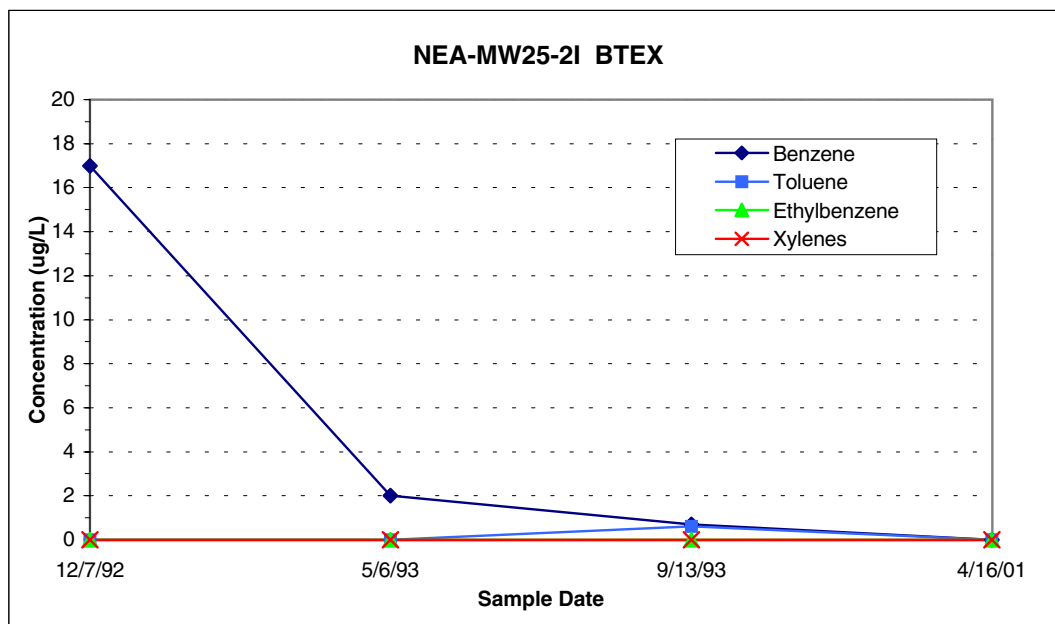
WPAFB - BMP



## OU2 HYDROCARBON CONCENTRATION GRAPHS

WELL: NEA-MW-25-2I

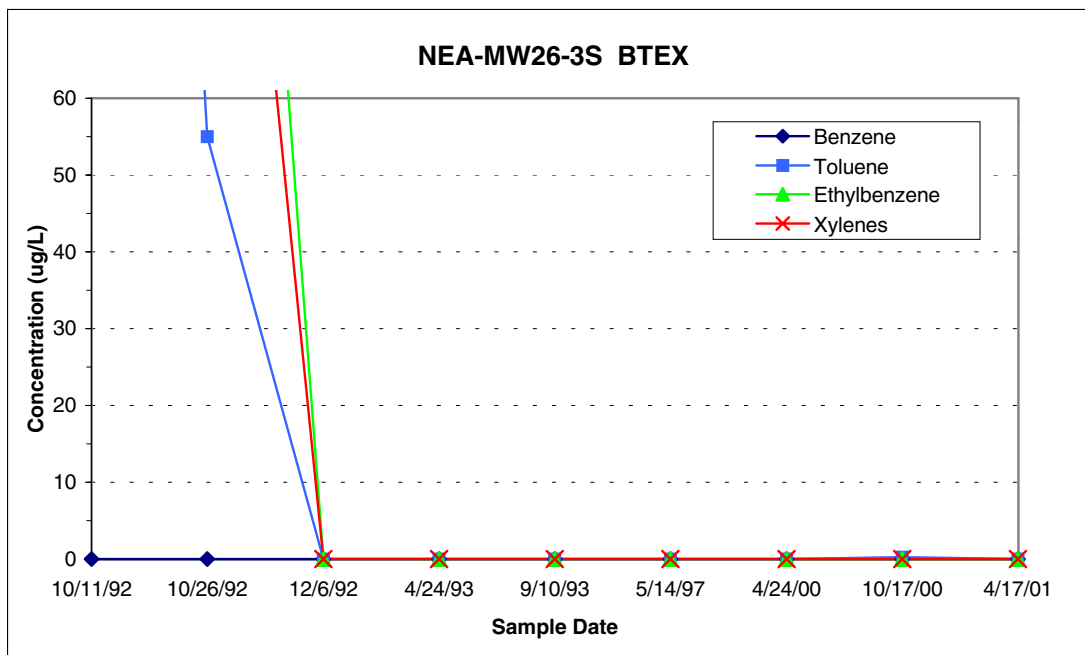
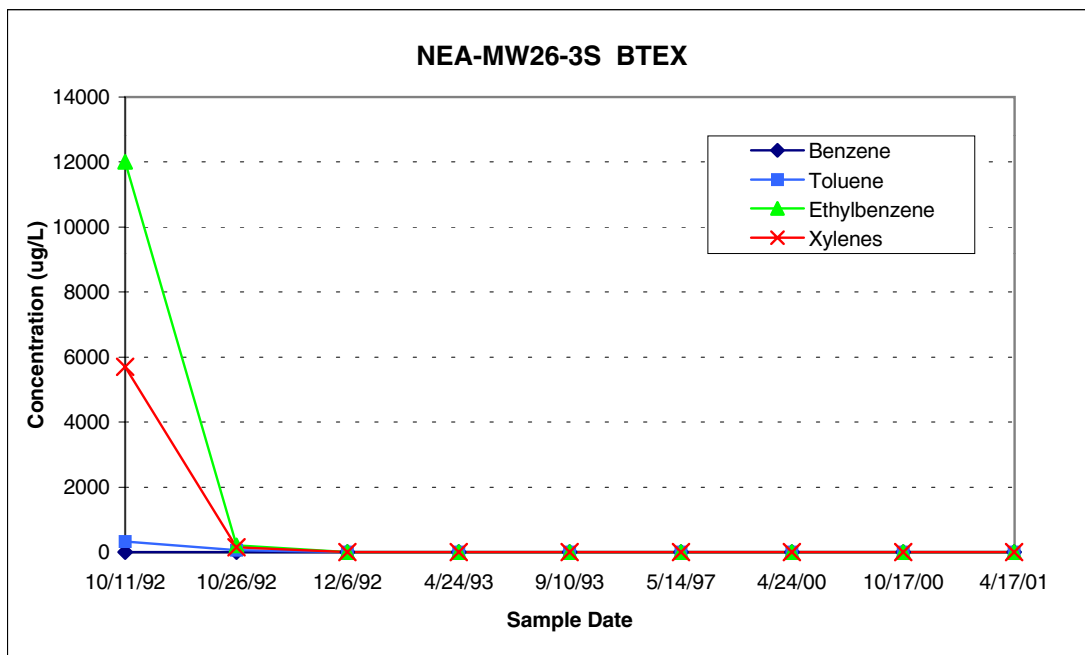
WPAFB-BMP



## OU2 HYDROCARBON CONCENTRATION GRAPHS

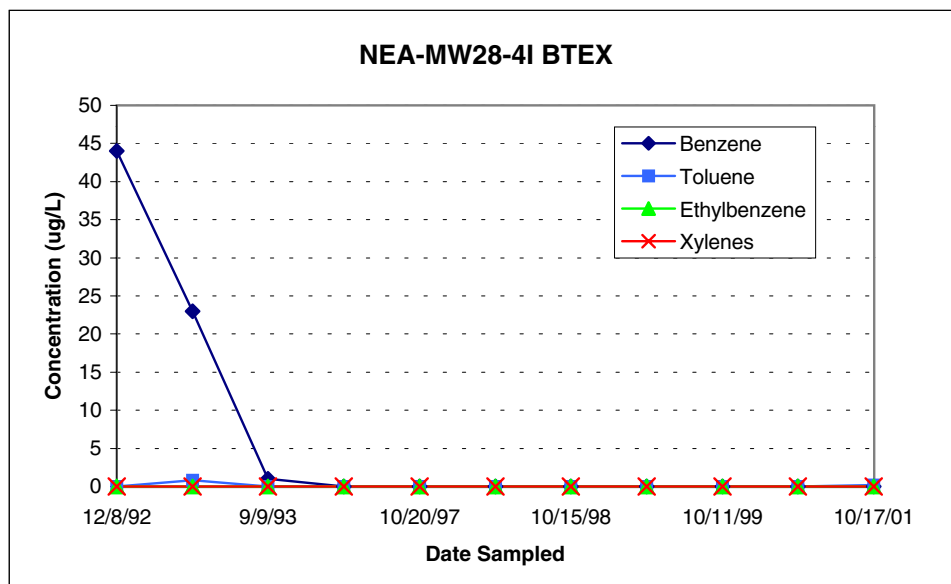
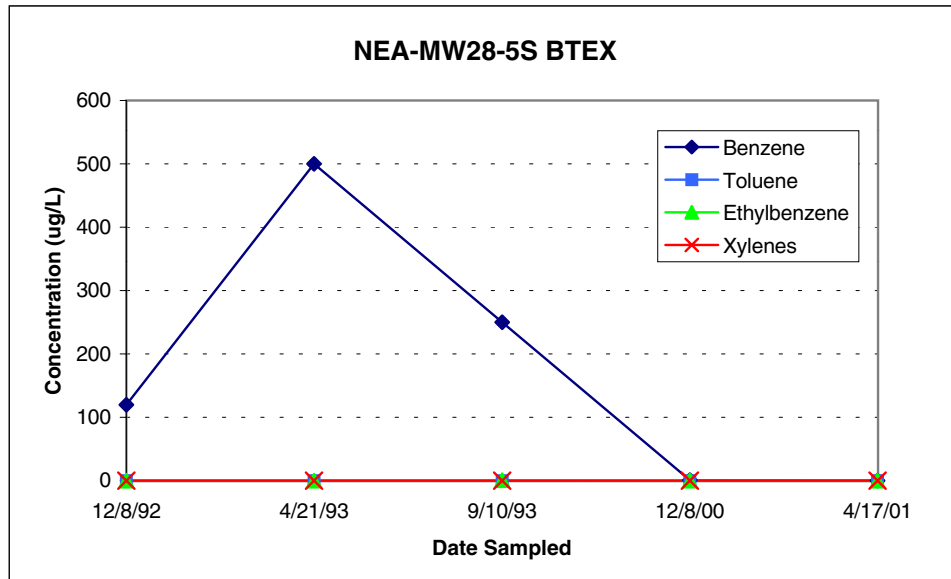
WELL: NEA-MW26-3S

WPAFB-BMP



BTEX concentrations are plotted on the bottom graph at a larger scale.

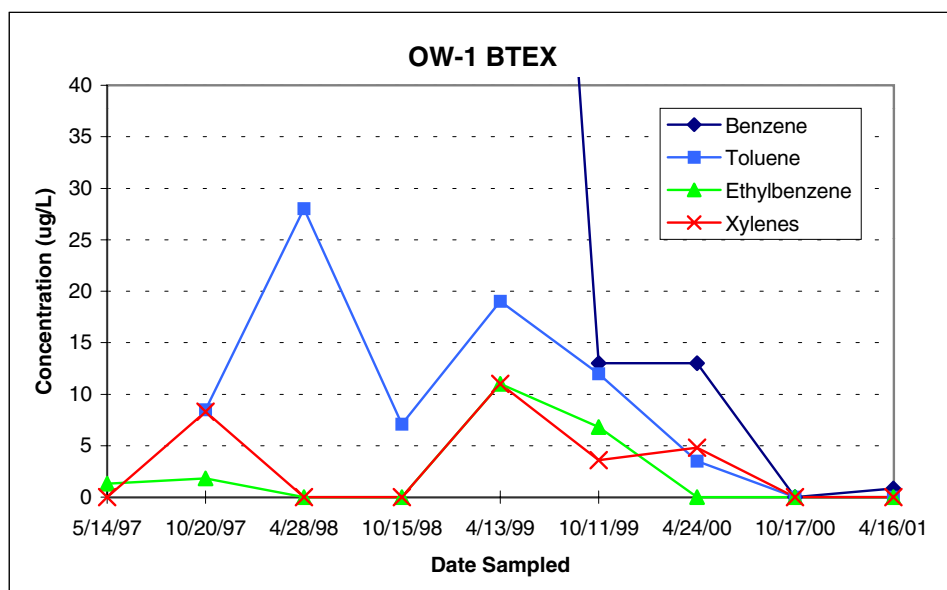
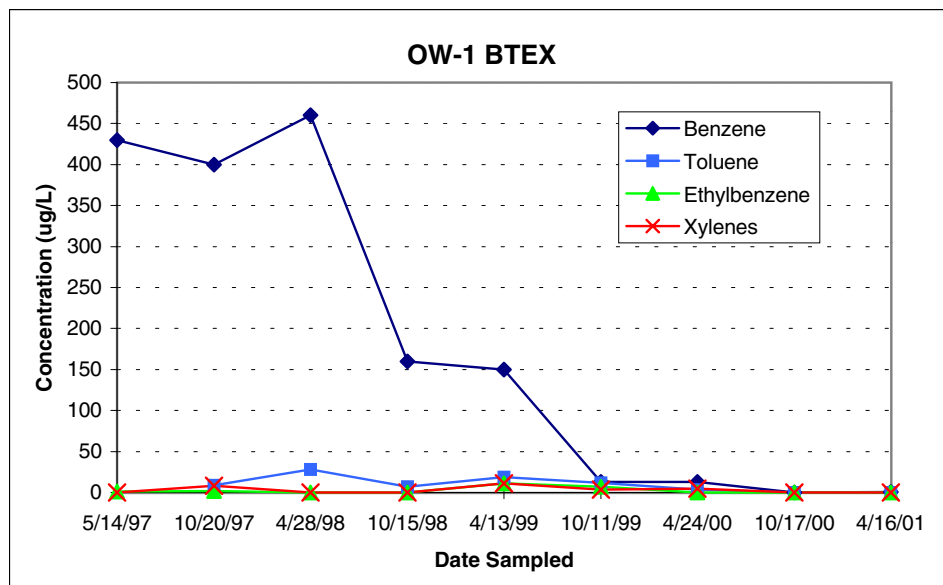
**OU2 HYDROCARBON CONCENTRATION GRAPHS**  
**WELLS: NEA-MW28-5S and NEA-MW-28-4I**  
WPAFB - BMP



## OU2 HYDROCARBON CONCENTRATION GRAPHS

WELL: OW-1

WPAFB-BMP

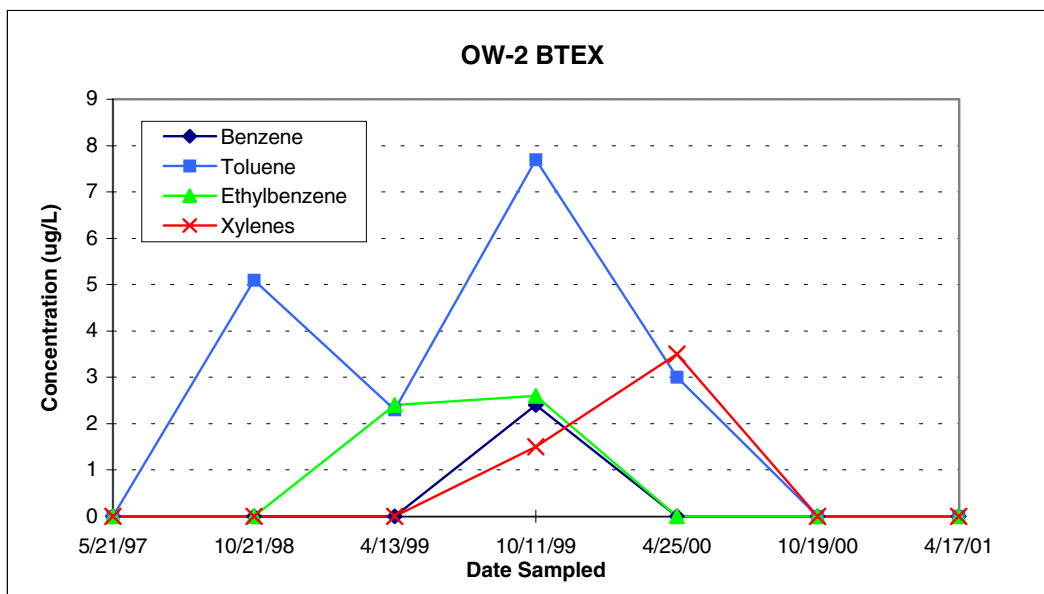


BTEX concentrations are plotted on the bottom graph, at a larger scale to show the variations in concentrations.

## OU2 HYDROCARBON CONCENTRATION GRAPHS

WELL: OW-2

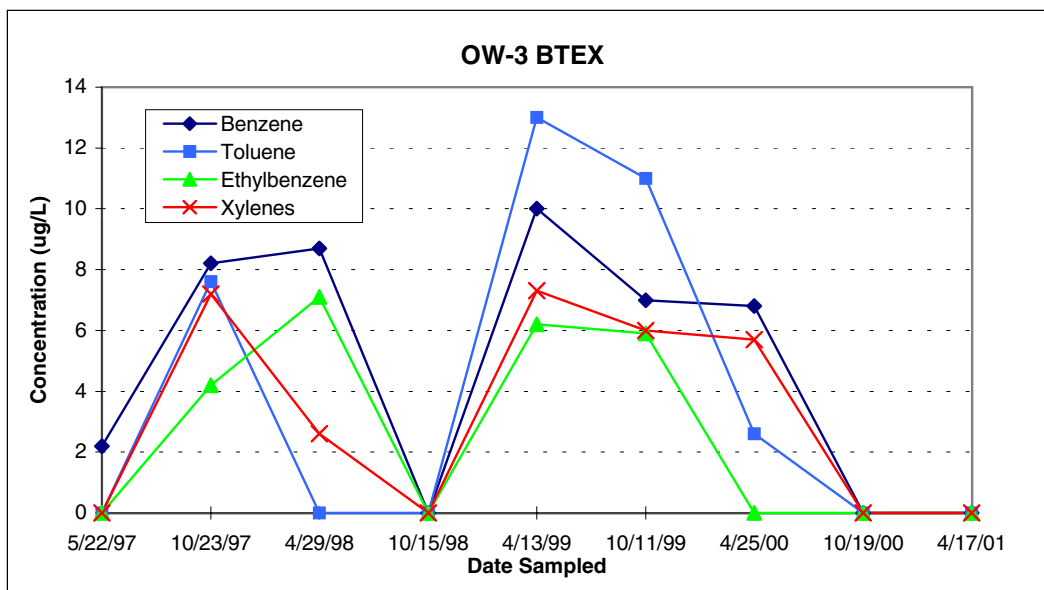
WPAFB - BMP



## OU2 HYDROCARBON CONCENTRATION GRAPHS

WELL: OW-3

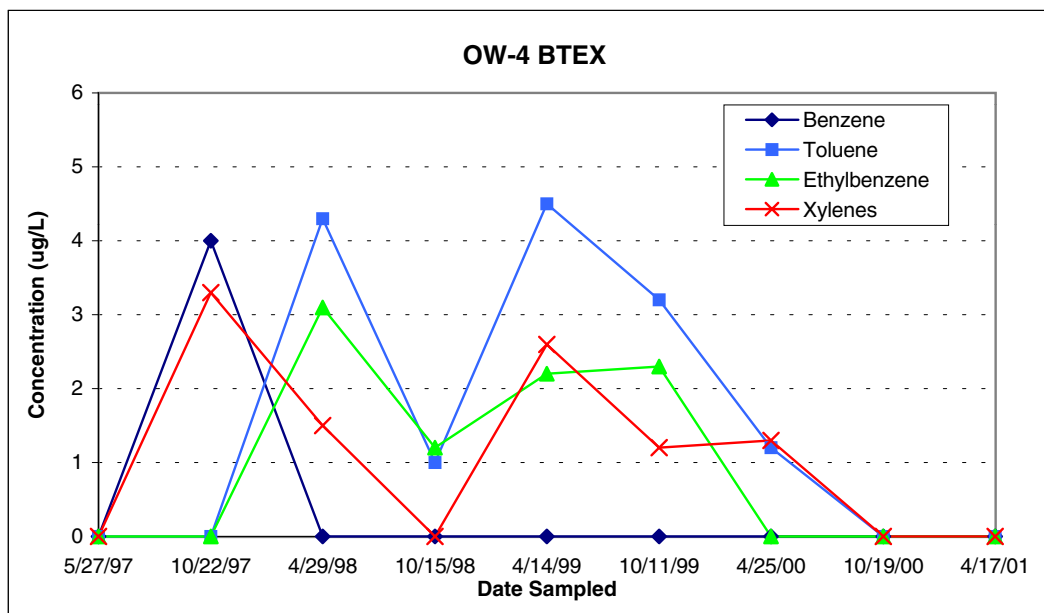
WPAFB - BMP



## OU2 HYDROCARBON CONCENTRATION GRAPHS

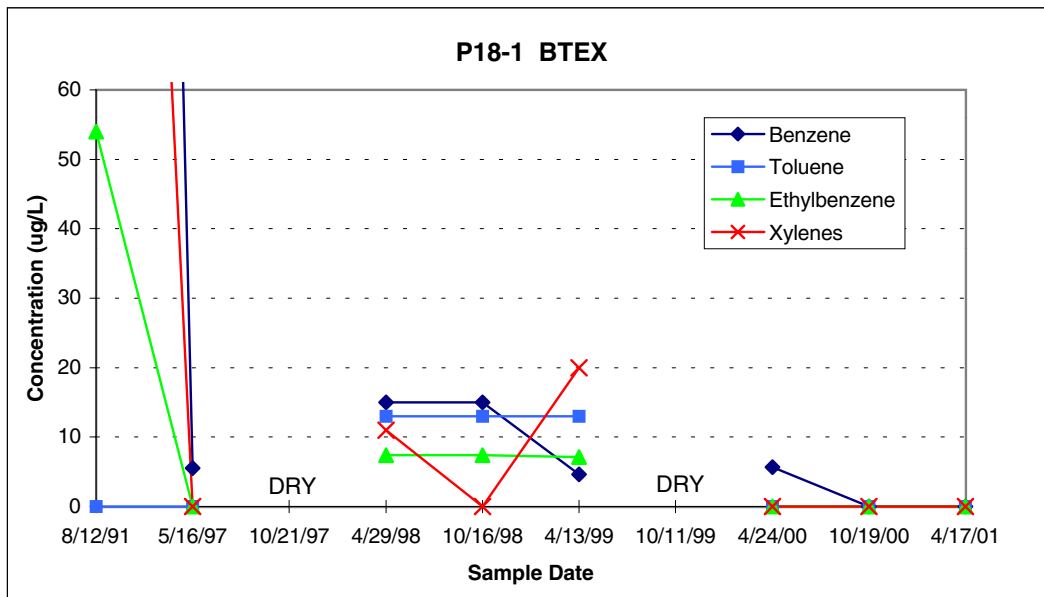
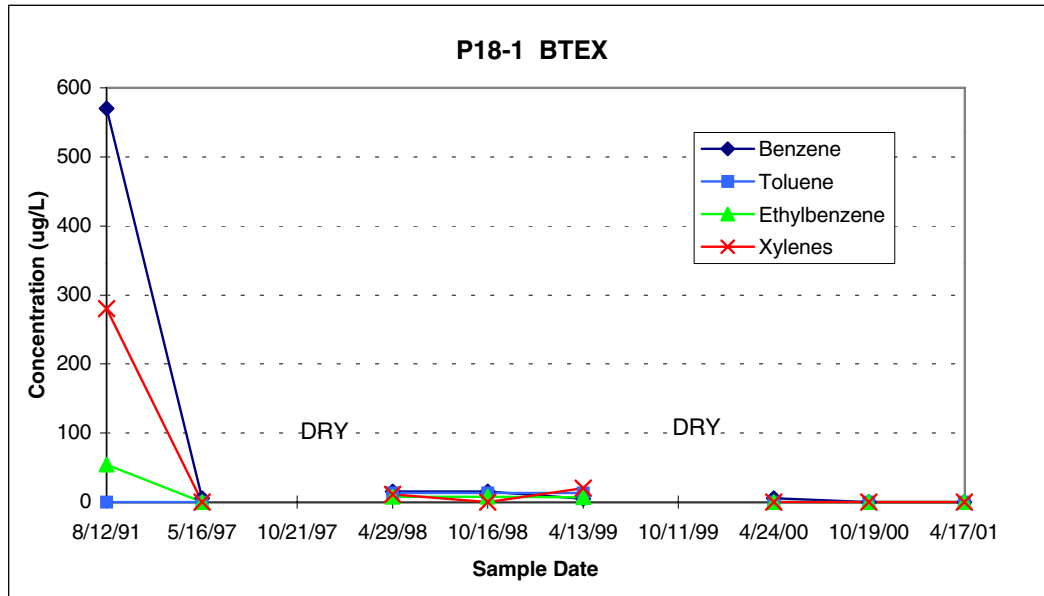
WELL: OW-4

WPAFB - BMP



## OU2 HYDROCARBON CONCENTRATION GRAPHS

WELL: P18-1  
WPAFB - BMP

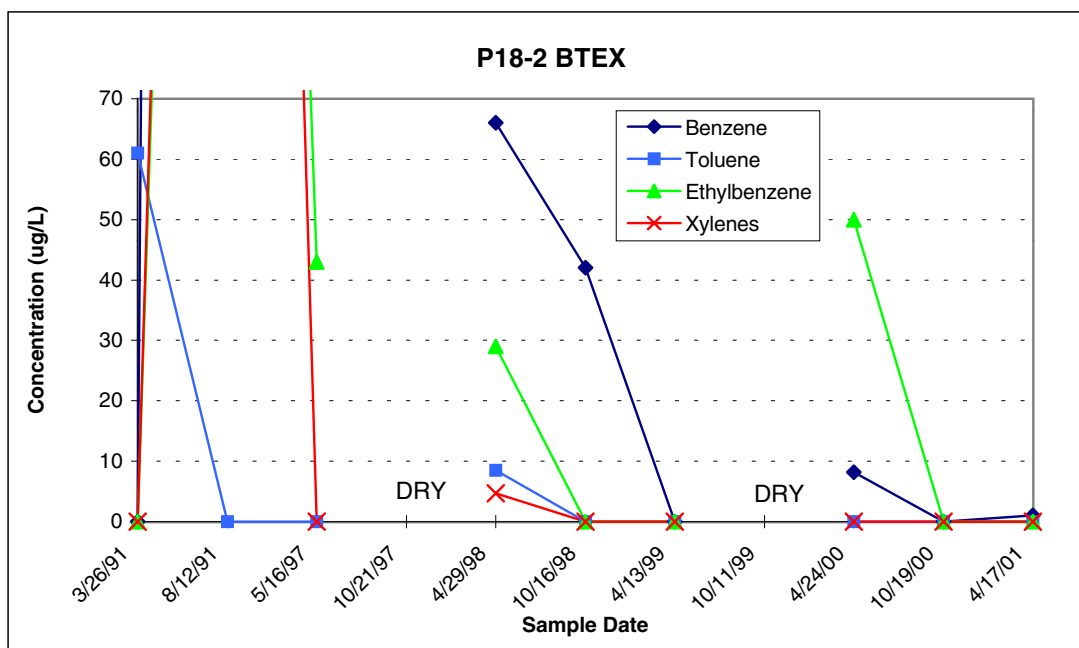
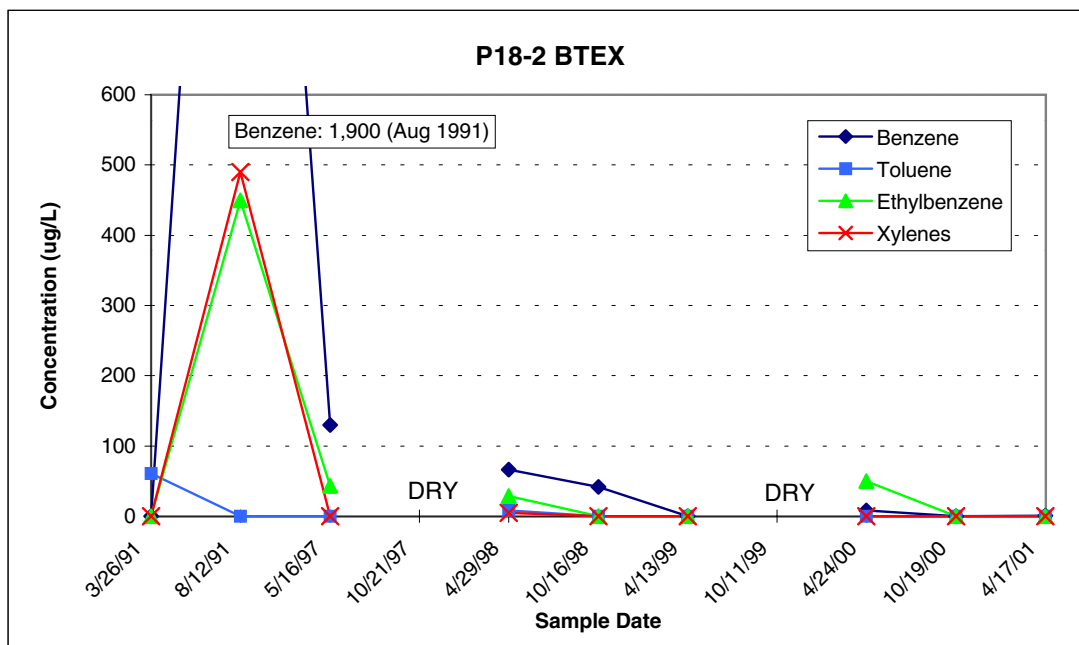


BTEX concentrations are plotted on the bottom graph, at a larger scale to show the variations in concentrations.

## OU2 HYDROCARBON CONCENTRATION GRAPHS

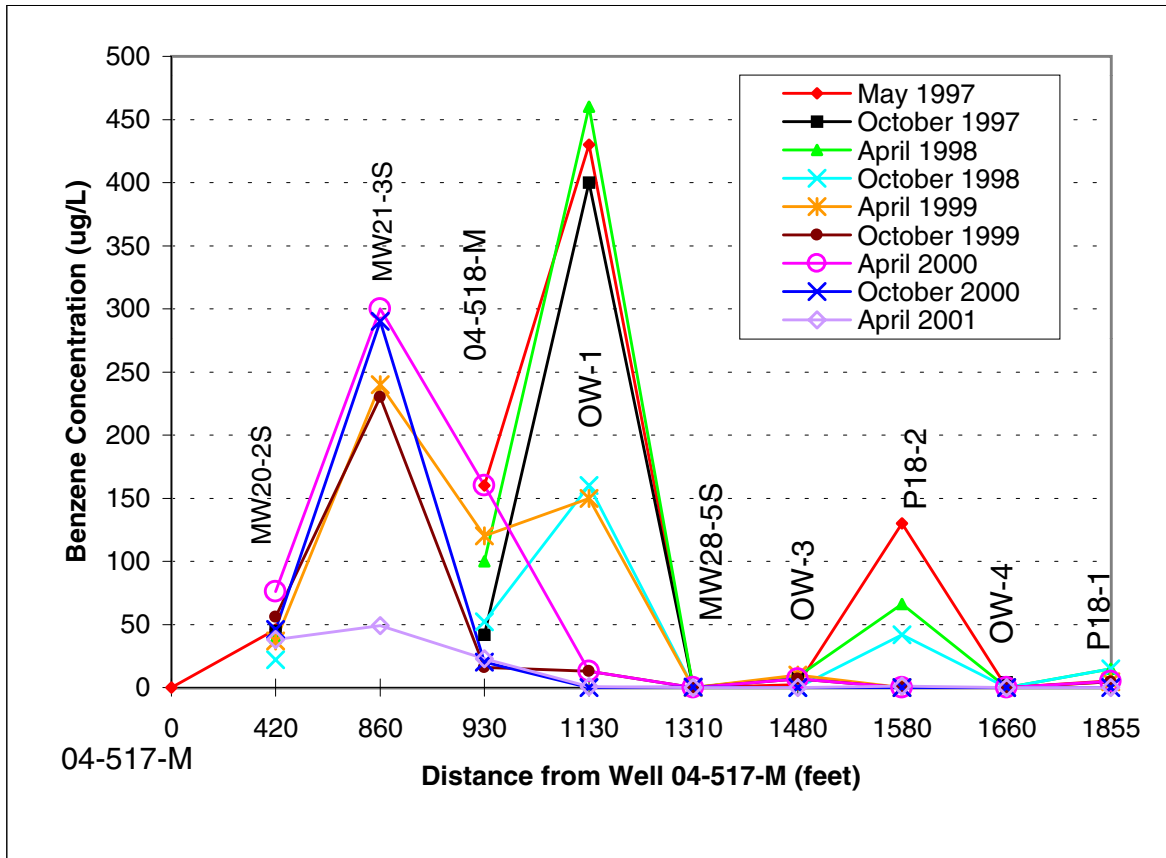
WELL: P18-2

WPAFB - BMP

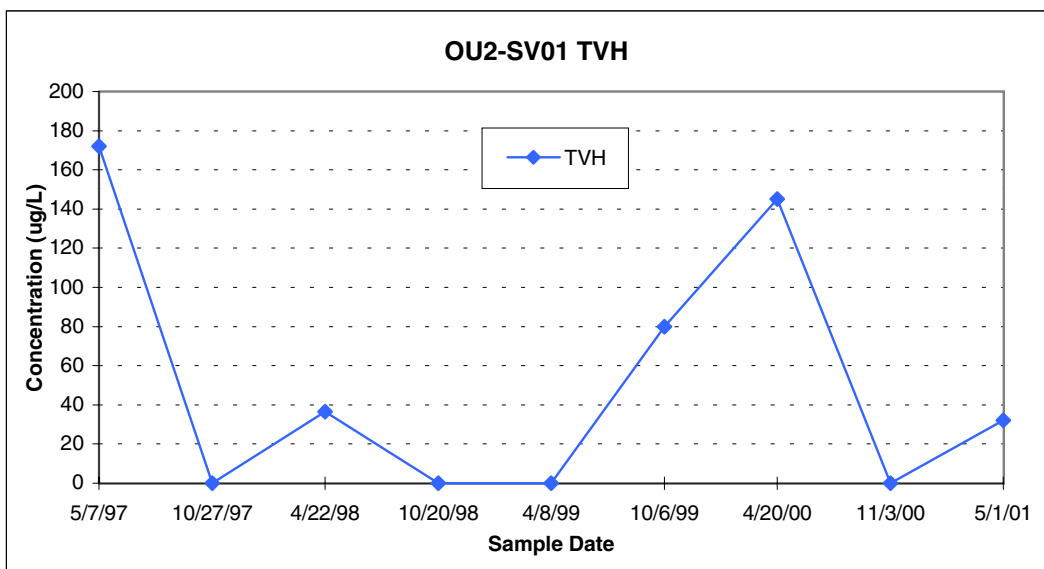
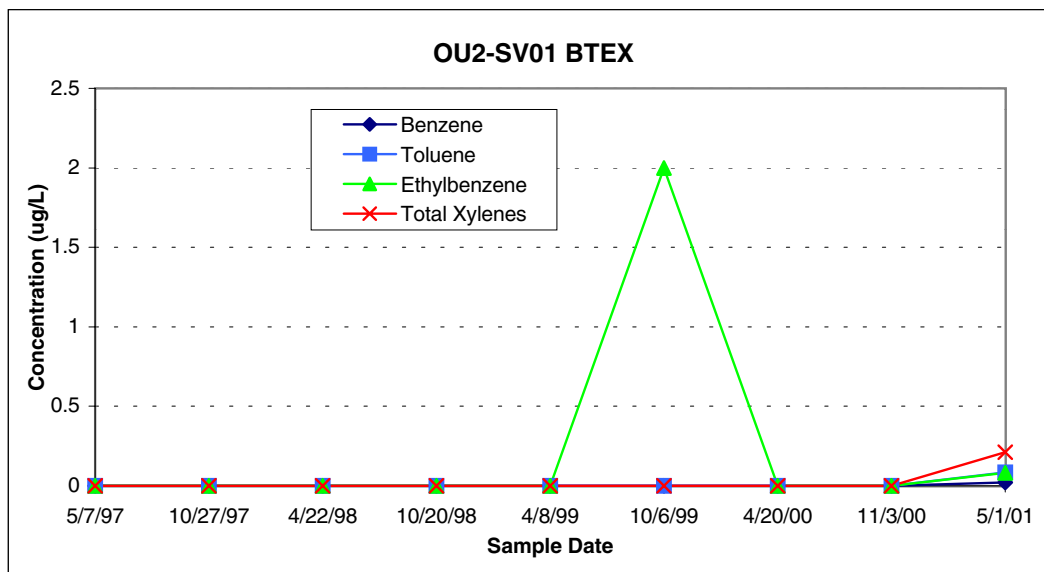


BTEX concentrations are plotted on the bottom graph, at a larger scale to show the variations in concentrations.

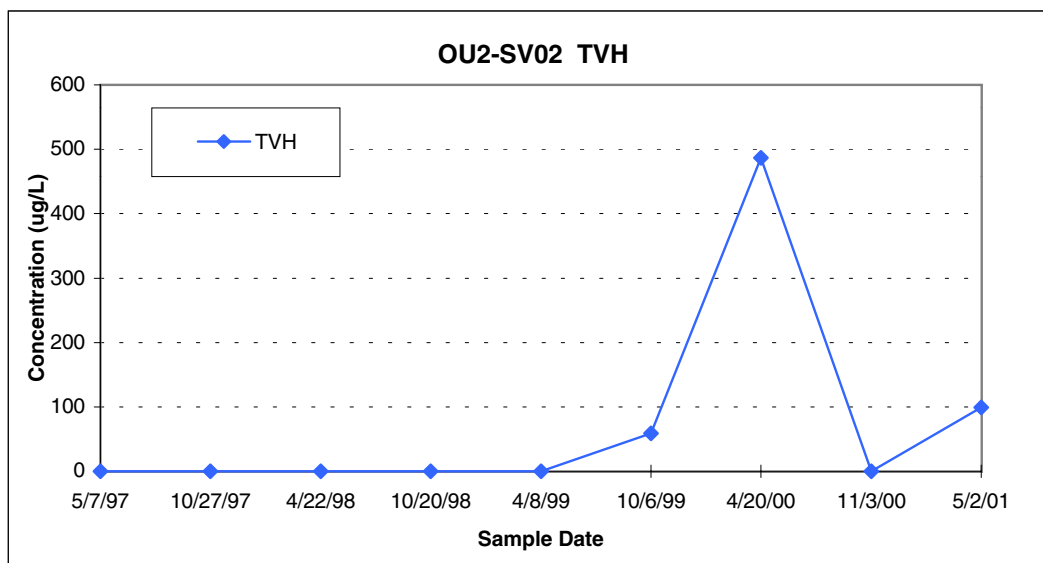
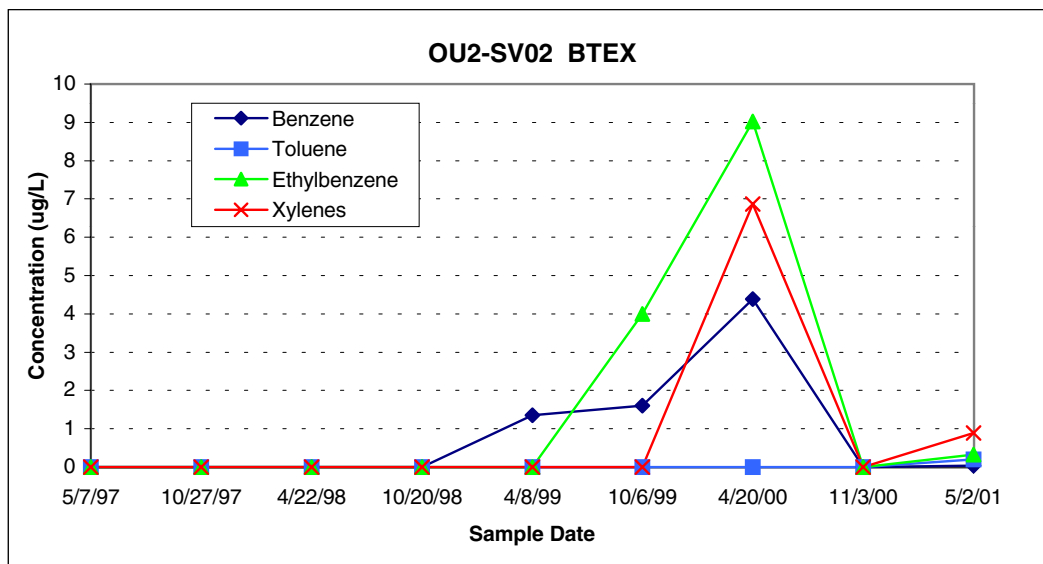
# **OU2 Benzene Concentrations vs Downgradient Distance From Well 04-517-M WPAFB-BMP**



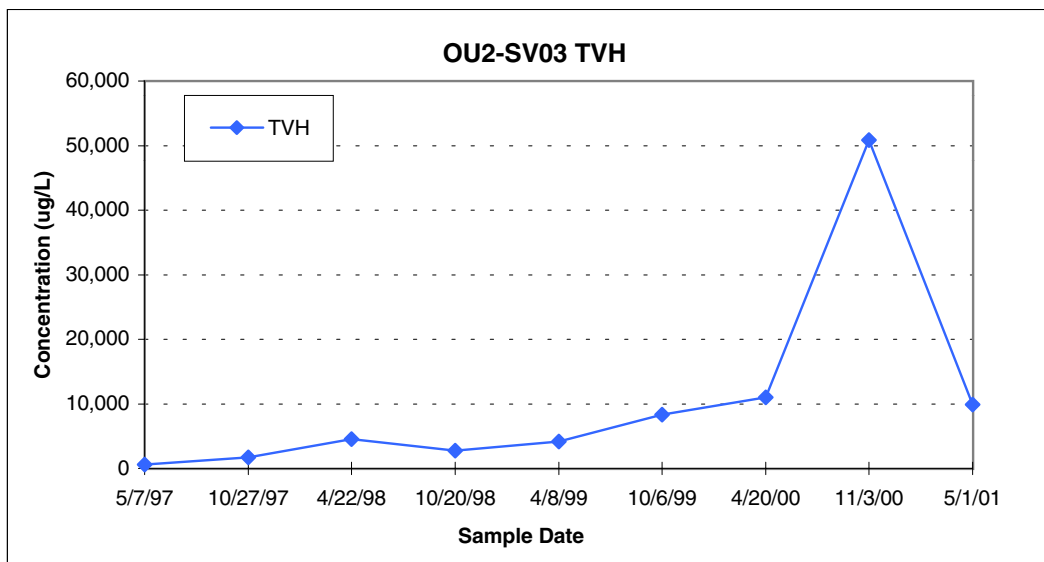
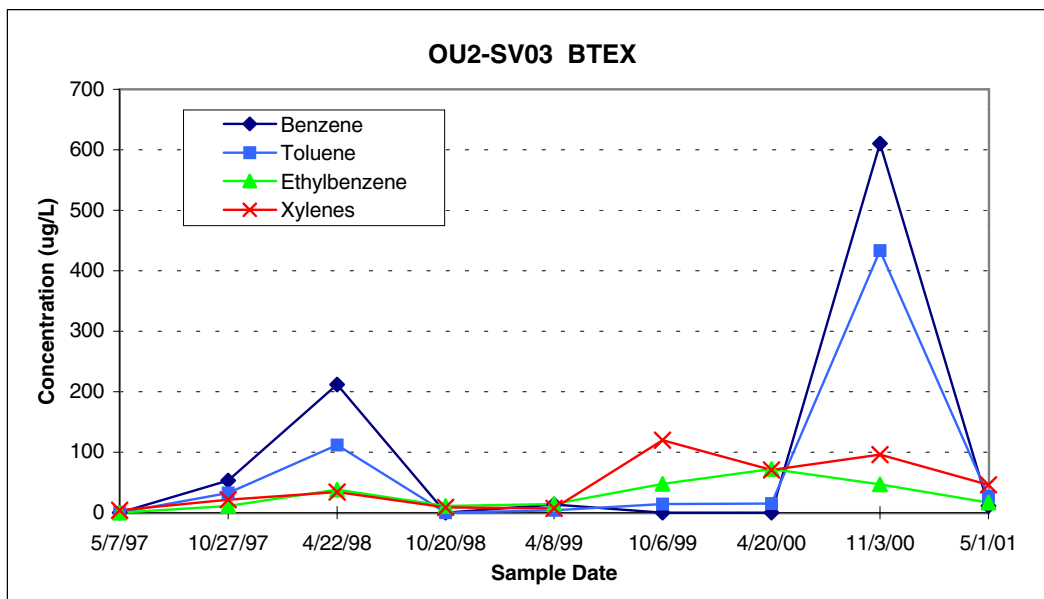
**OU2 SOIL VAPOR HYDROCARBON  
CONCENTRATION GRAPHS  
WELL: OU2-SV01  
WPAFB - BMP**



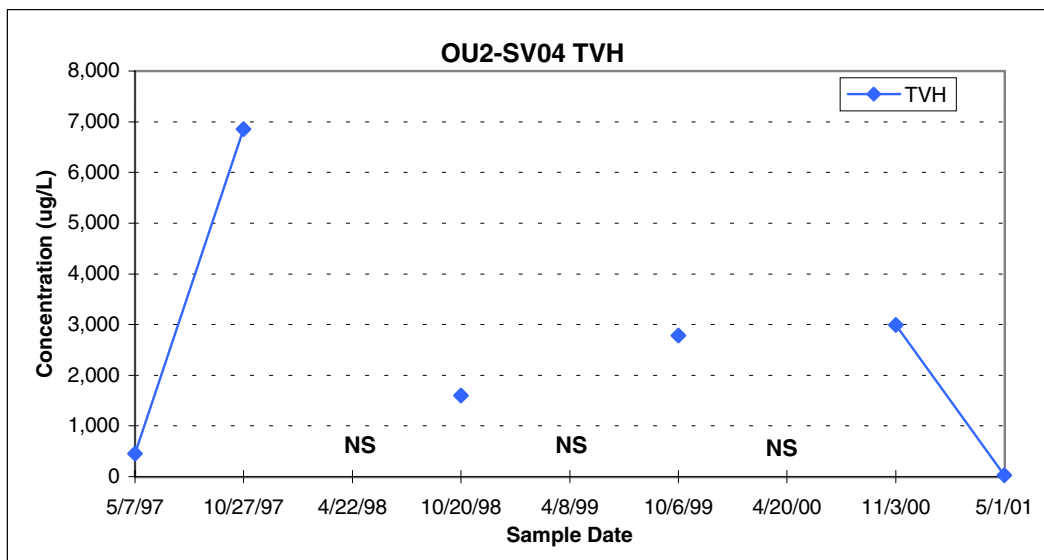
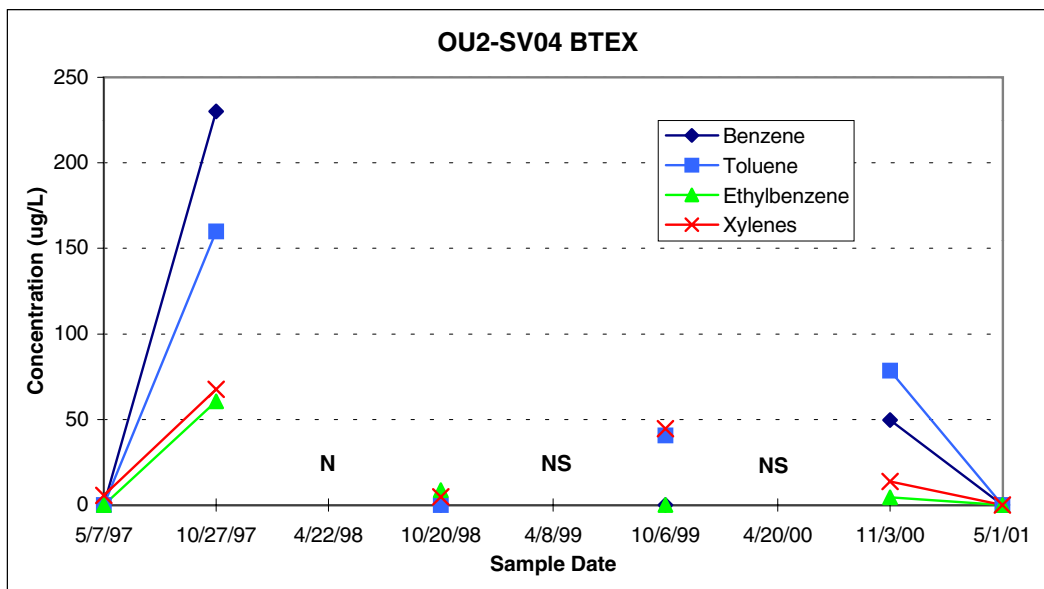
**OU2 SOIL VAPOR HYDROCARBON  
CONCENTRATION GRAPHS  
WELL: OU2-SV02  
WPAFB - BMP**



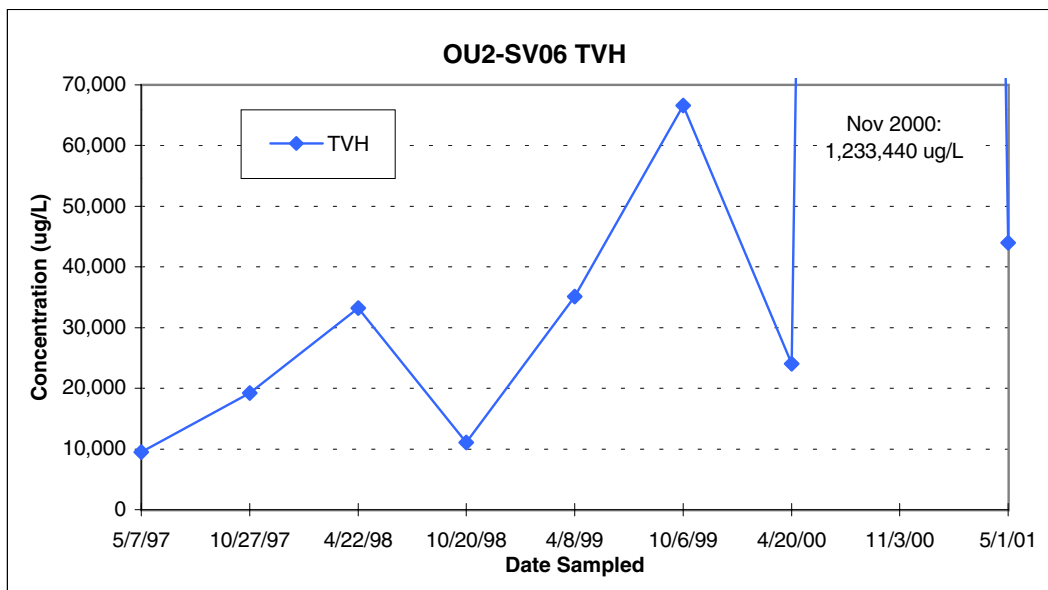
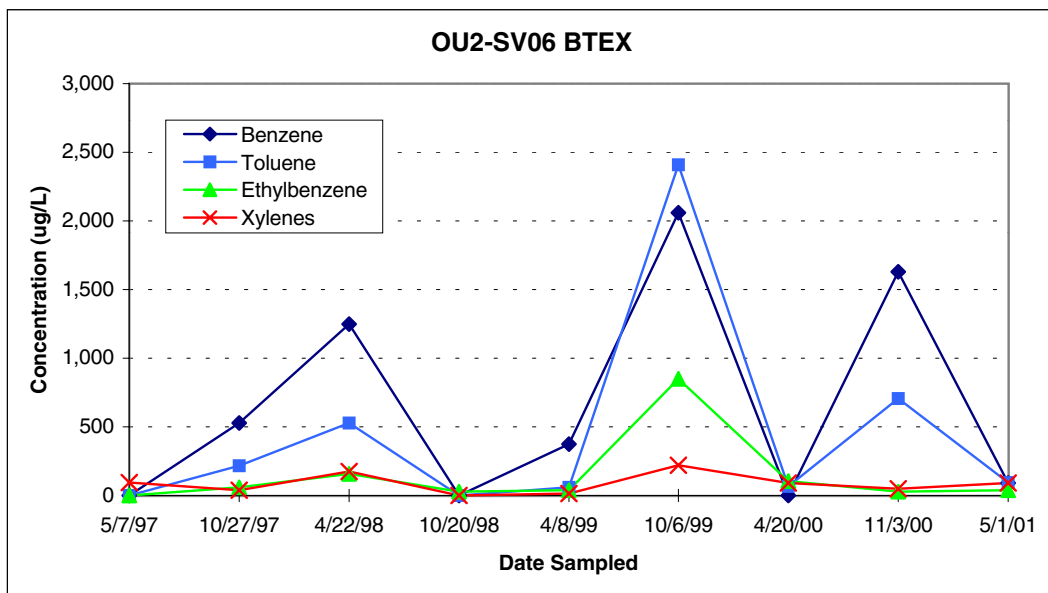
**OU2 SOIL VAPOR HYDROCARBON  
CONCENTRATION GRAPHS  
WELL: OU2-SV03  
WPAFB - BMP**



**OU2 SOIL VAPOR HYDROCARBON  
CONCENTRATION GRAPHS  
WELL: OU2-SV04  
WPAFB - BMP**

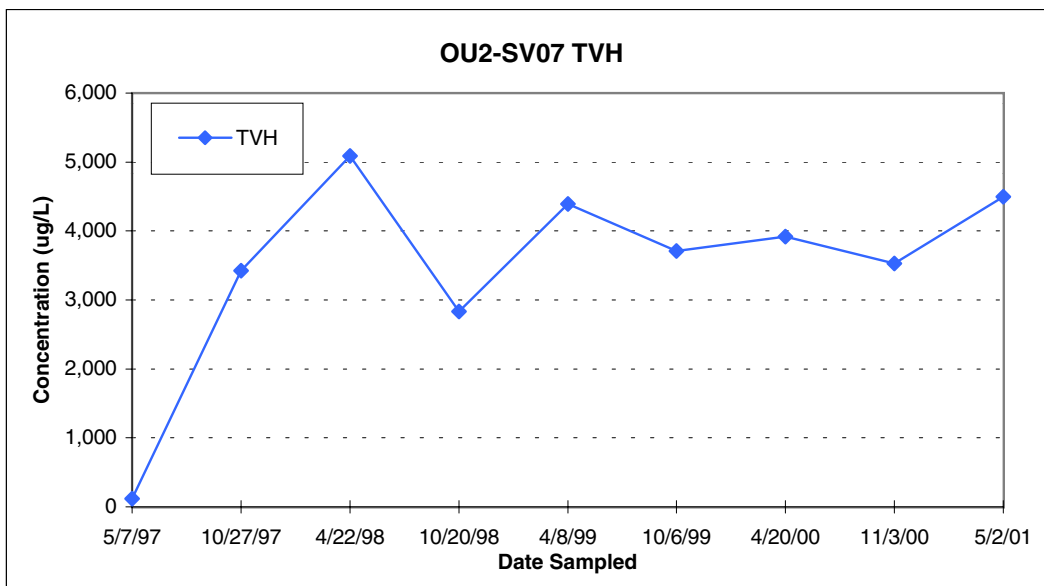
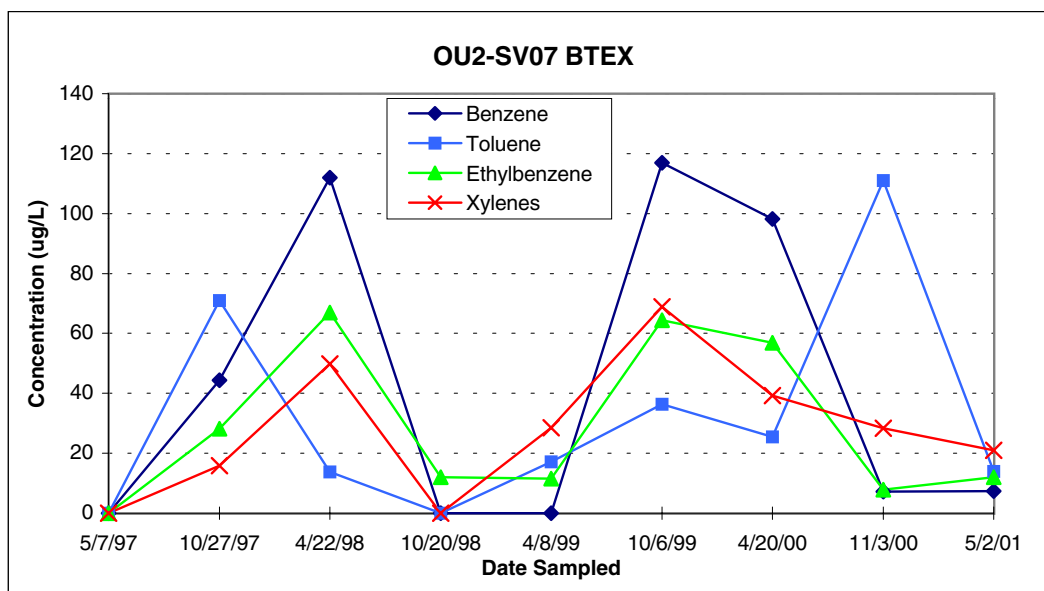


**OU2 SOIL VAPOR HYDROCARBON  
CONCENTRATION GRAPHS  
WELL: OU2-SV06  
WPAFB - BMP**

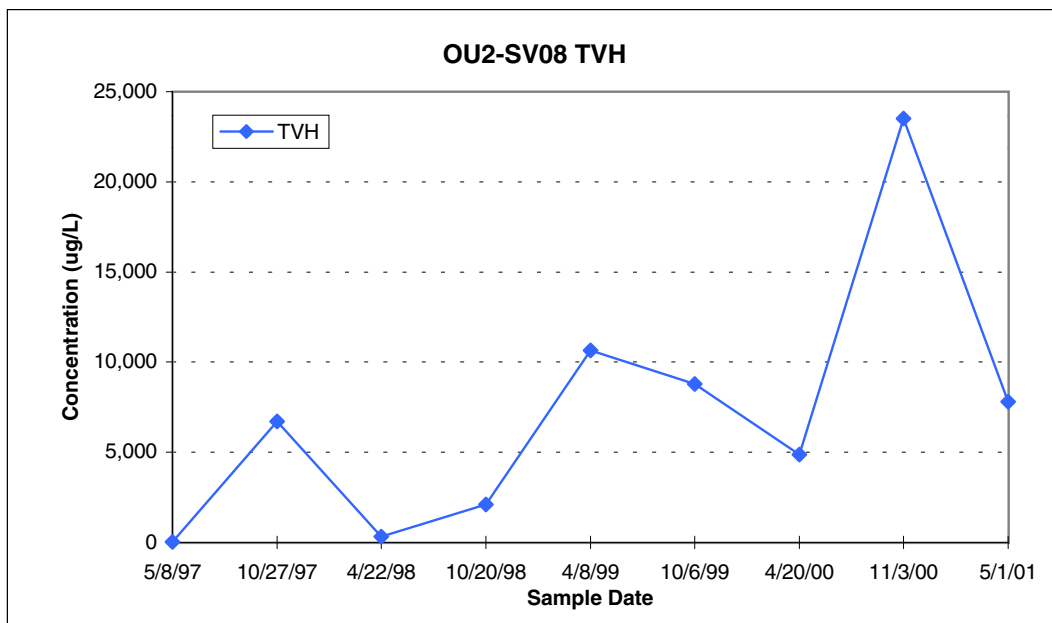
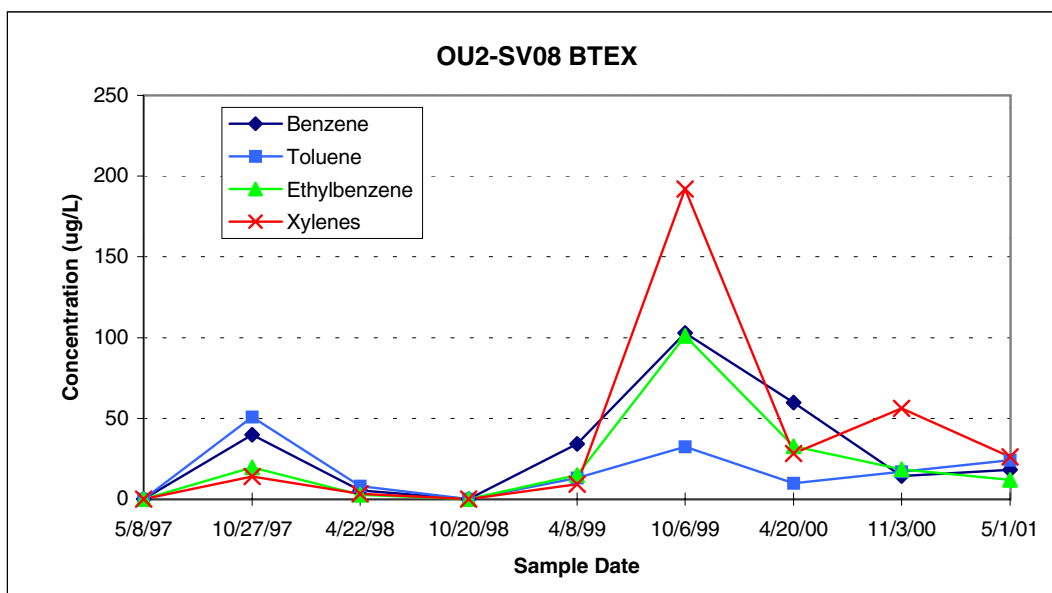


**FIGURE 5-27**

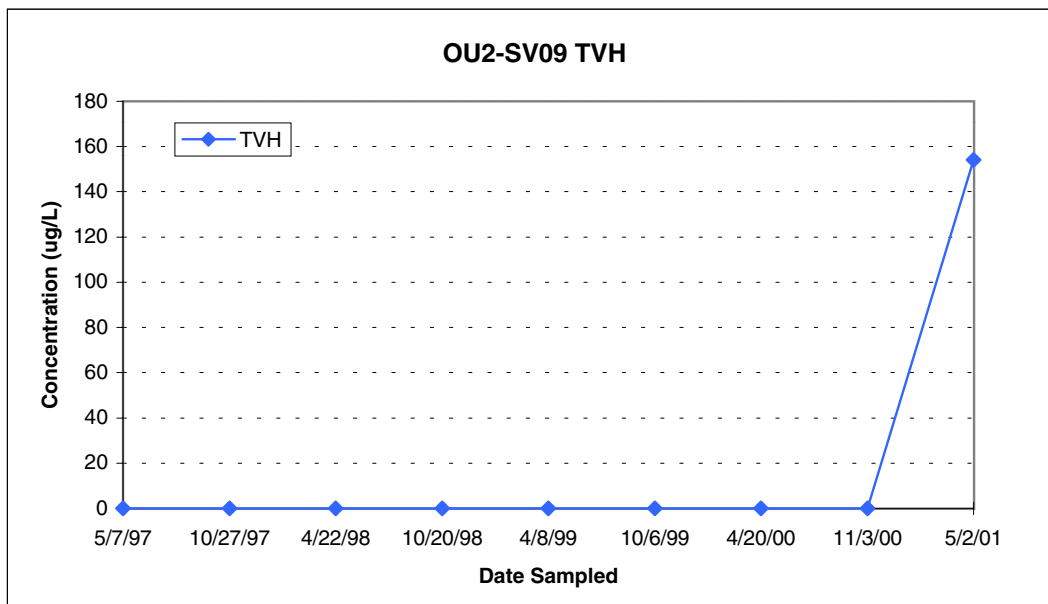
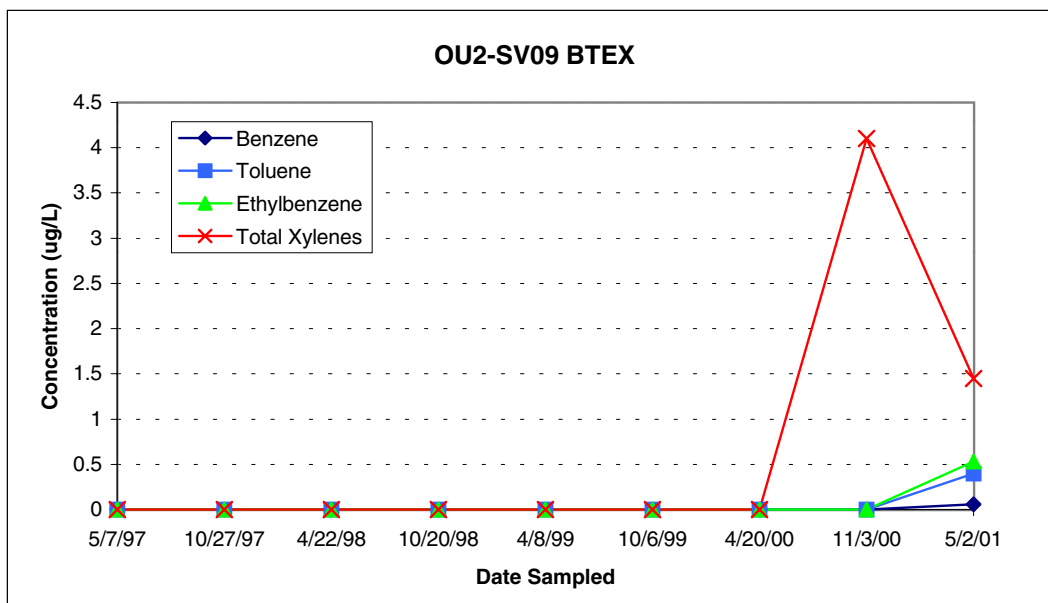
**OU2 SOIL VAPOR HYDROCARBON  
CONCENTRATION GRAPHS  
WELL: OU2-SV07  
WPAFB - BMP**



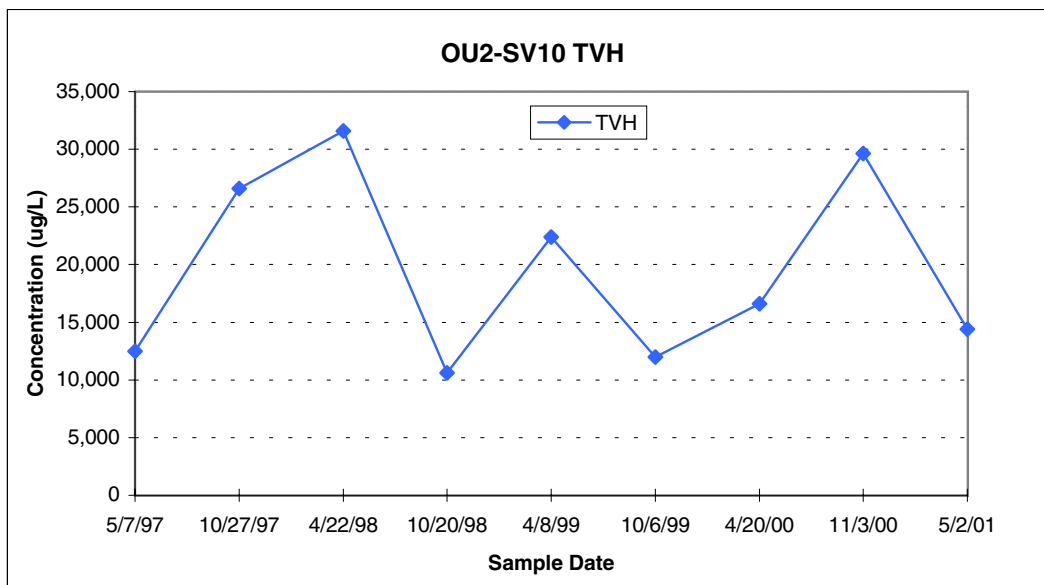
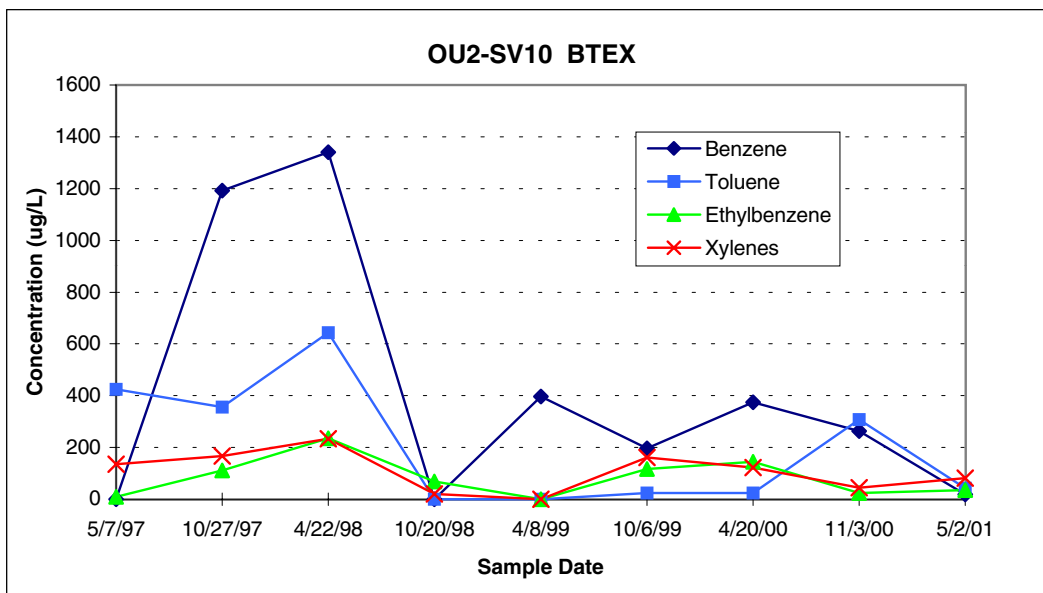
**OU2 SOIL VAPOR HYDROCARBON  
CONCENTRATION GRAPHS  
WELL: OU2-SV08  
WPAFB - BMP**



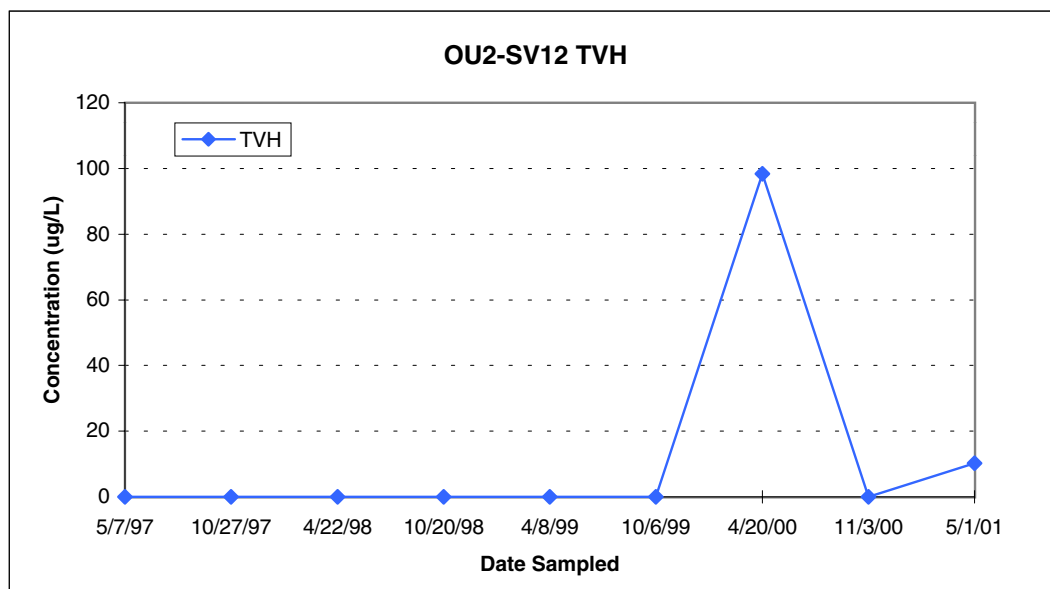
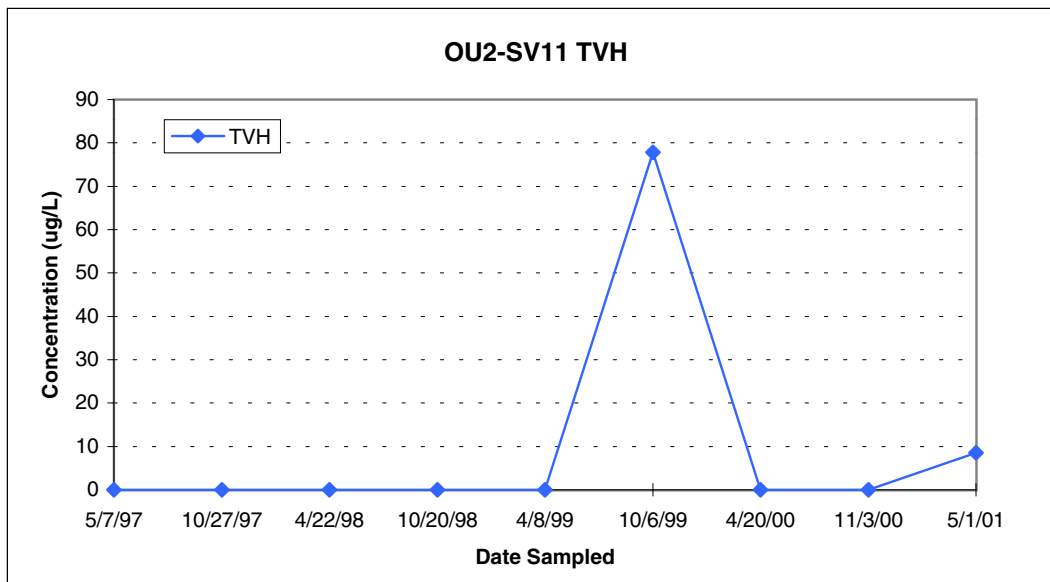
**OU2 SOIL VAPOR HYDROCARBON  
CONCENTRATION GRAPHS  
WELL: OU2-SV09  
WPAFB - BMP**



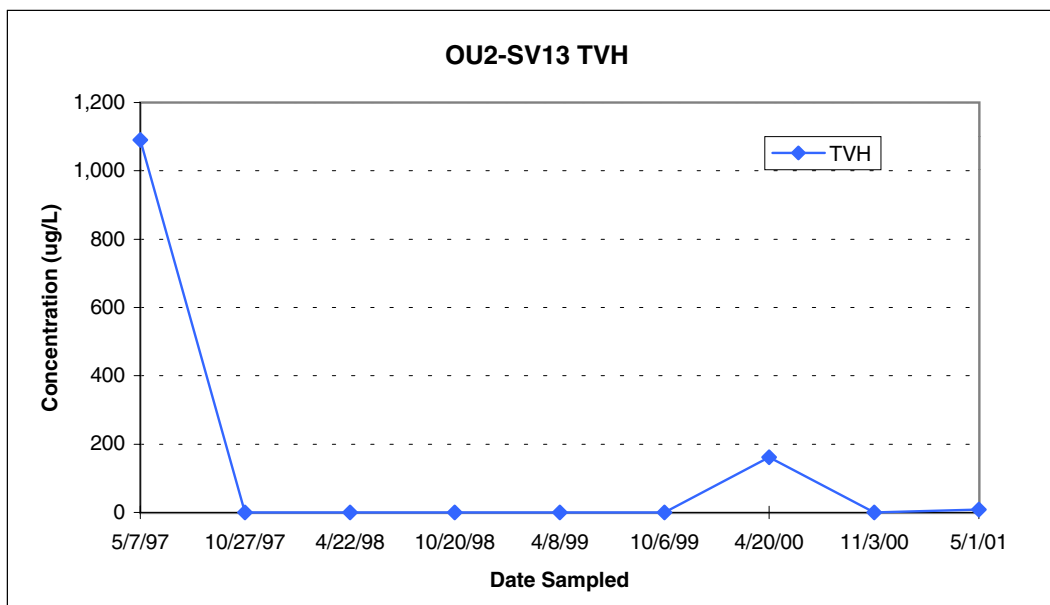
**OU2 SOIL VAPOR HYDROCARBON  
CONCENTRATION GRAPHS  
WELL: OU2-SV10  
WPAFB - BMP**



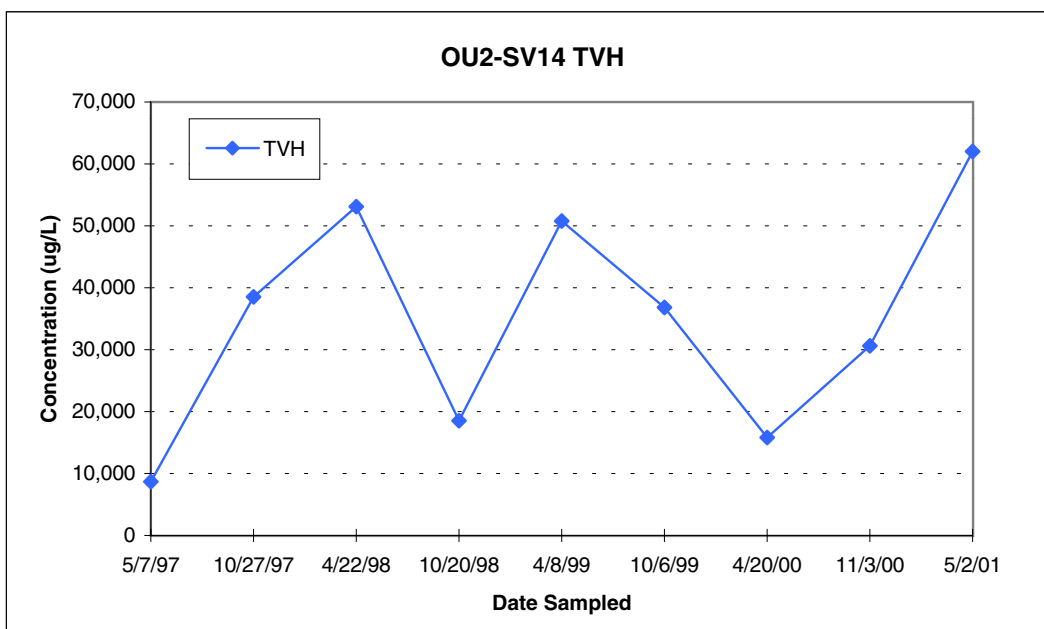
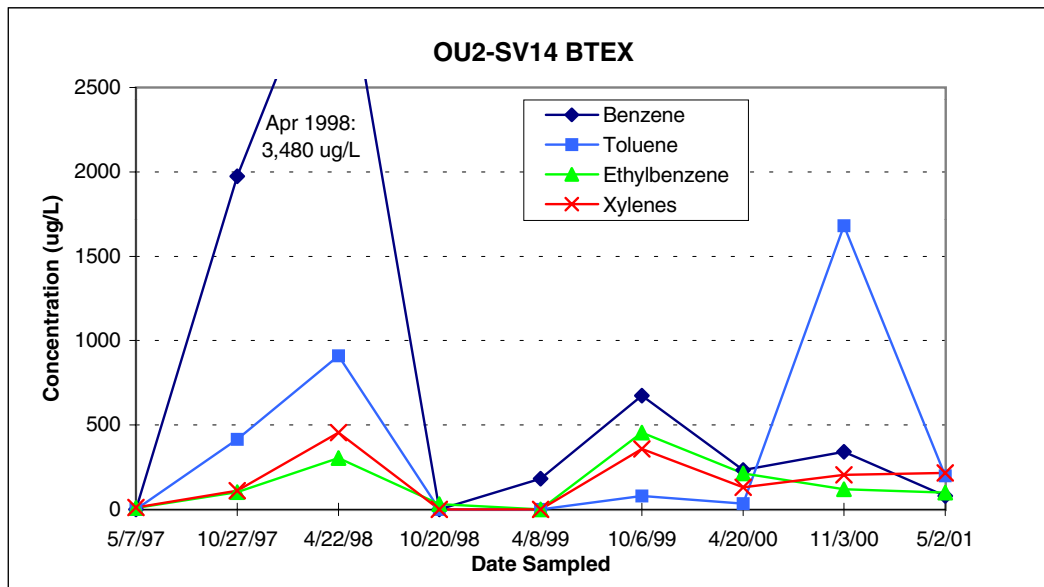
**OU2 SOIL VAPOR TOTAL HYDROCARBON  
CONCENTRATION GRAPH  
WELLS: OU2-SV11 and OU2-SV12  
WPAFB - BMP**



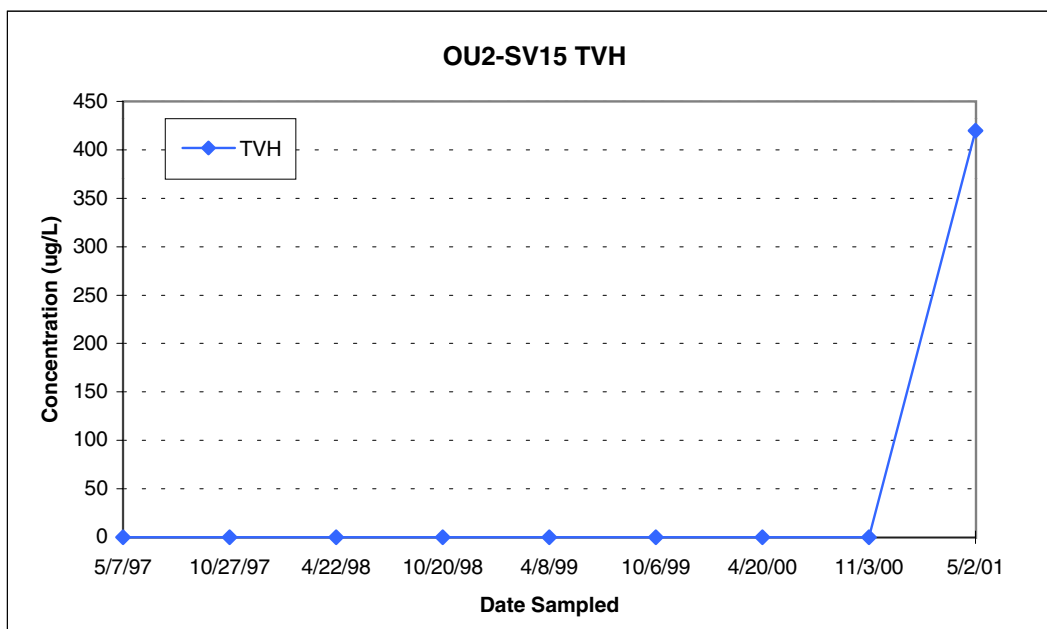
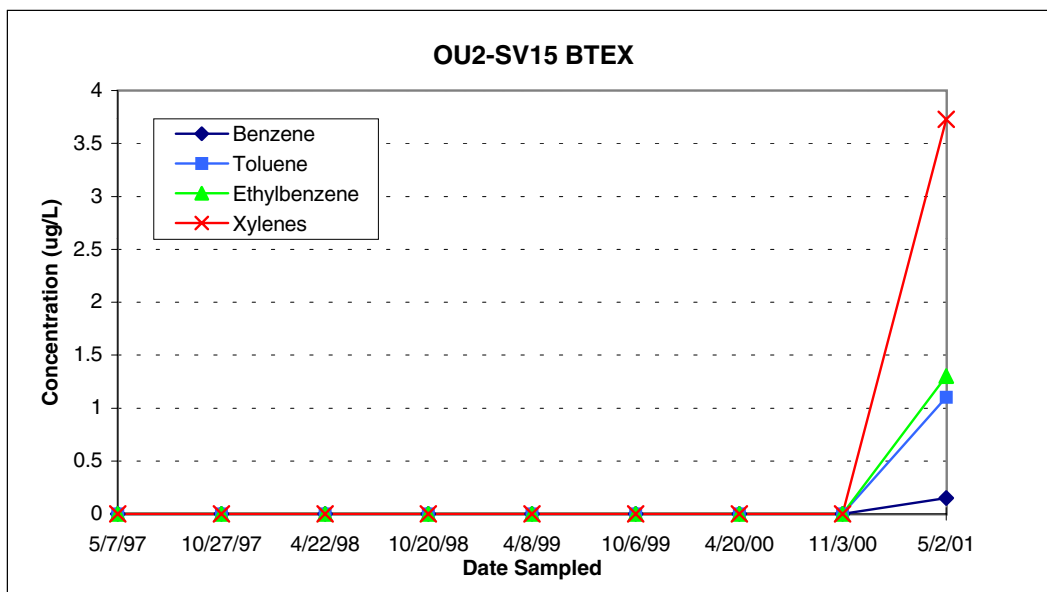
**OU2 SOIL VAPOR TOTAL HYDROCARBON  
CONCENTRATION GRAPHS  
WELL: OU2-SV13  
WPAFB-BMP**



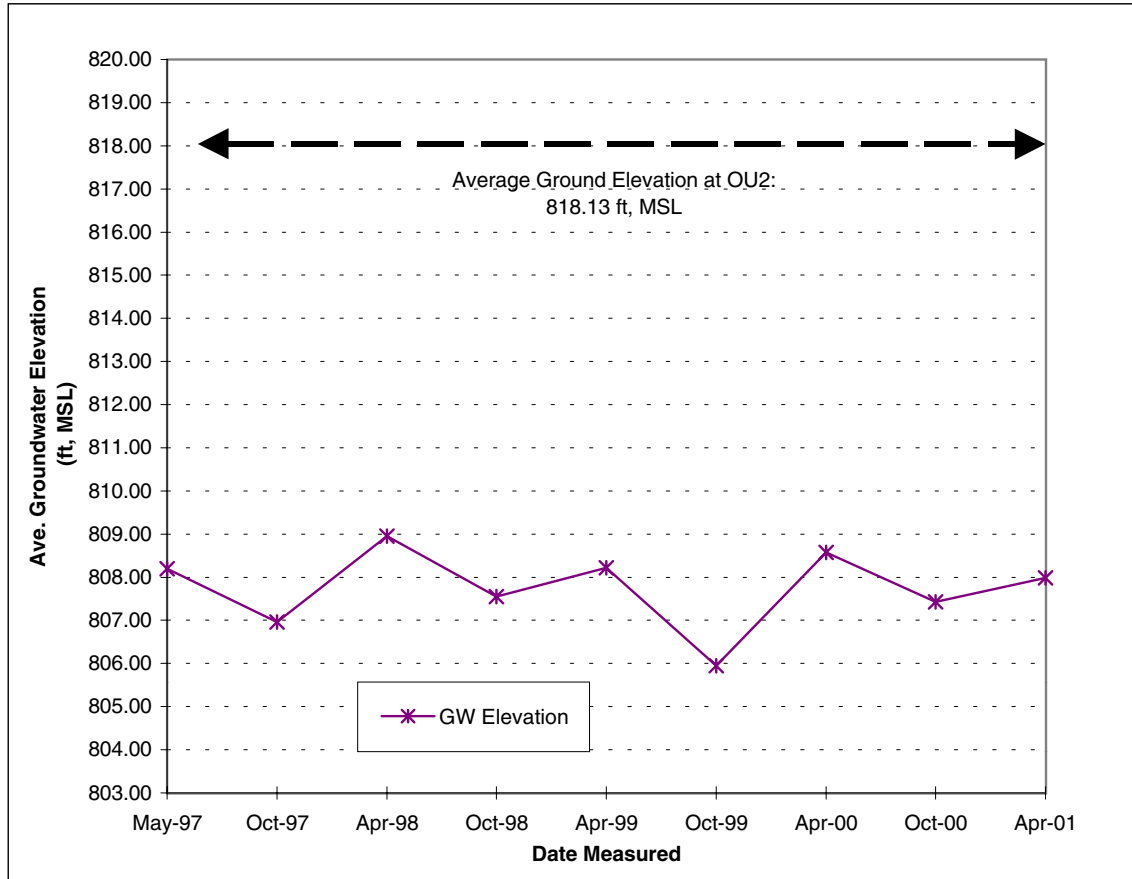
**OU2 SOIL VAPOR HYDROCARBON  
CONCENTRATION GRAPHS  
WELL: OU2-SV14  
WPAFB - BMP**

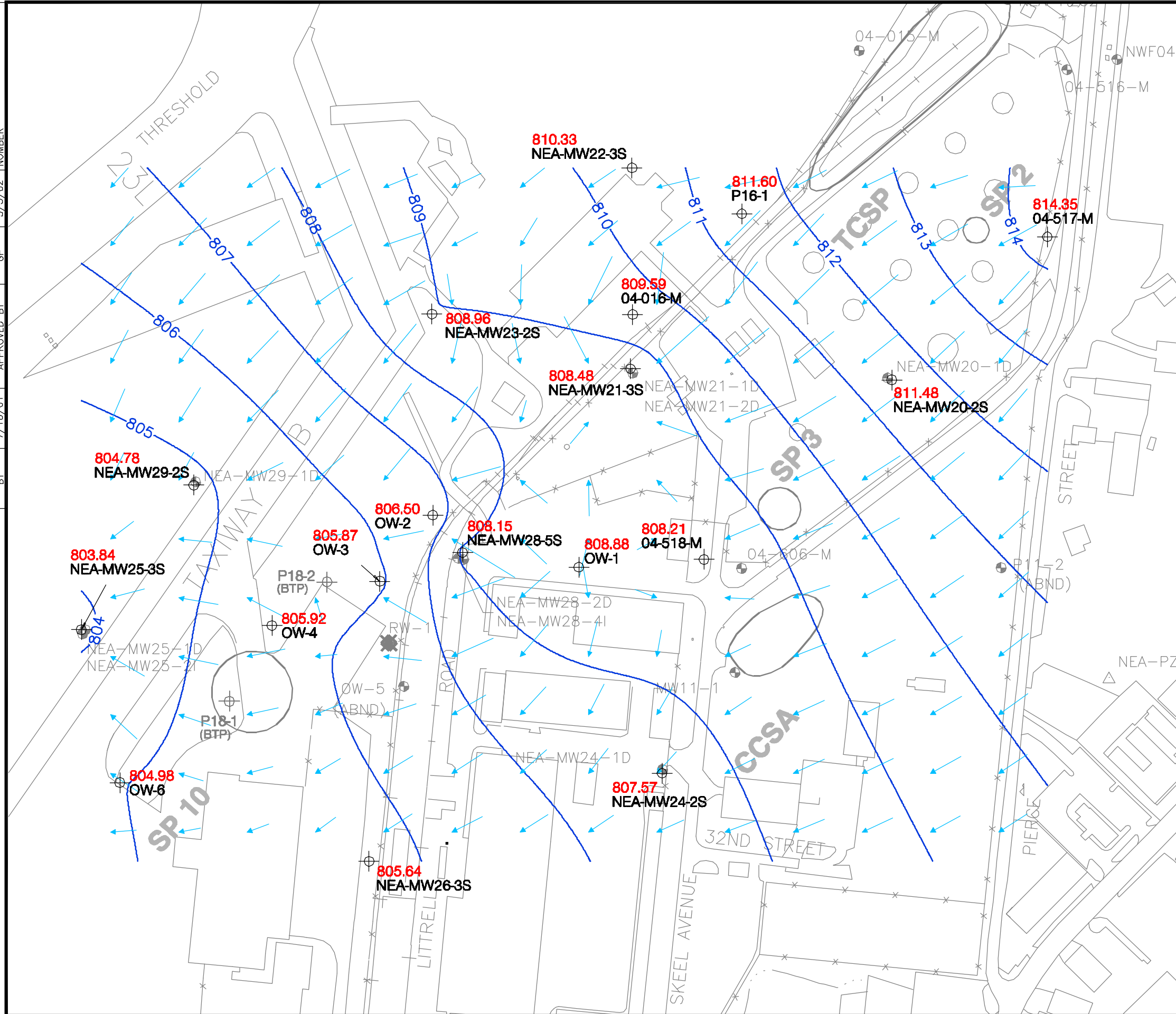


**OU2 SOIL VAPOR TOTAL HYDROCARBON  
CONCENTRATION GRAPHS  
WELL: OU2-SV15  
WPAFB - BMP**



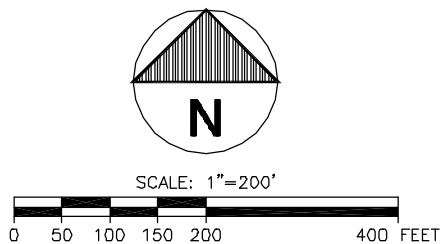
## OU2 Average Groundwater Elevations WPAFB-BMP





**LEGEND:**

- GROUNDWATER MONITORING WELLS
- GROUNDWATER MONITORING WELLS MEASURED DURING THE BASELINE MONITORING PROGRAM.
- (811.60)** APRIL 2001 GROUNDWATER LEVEL ELEVATION (FT, MSL)
- 810** APRIL 2001 GROUNDWATER ELEVATION CONTOUR (ft, msl) (DASHED WHERE INFERRED)
- (BTP)** WATER LEVEL IN WELL WAS BELOW THE TOP OF PUMP
- GROUNDWATER FLOW VELOCITY VECTOR



**Figure 5-37**

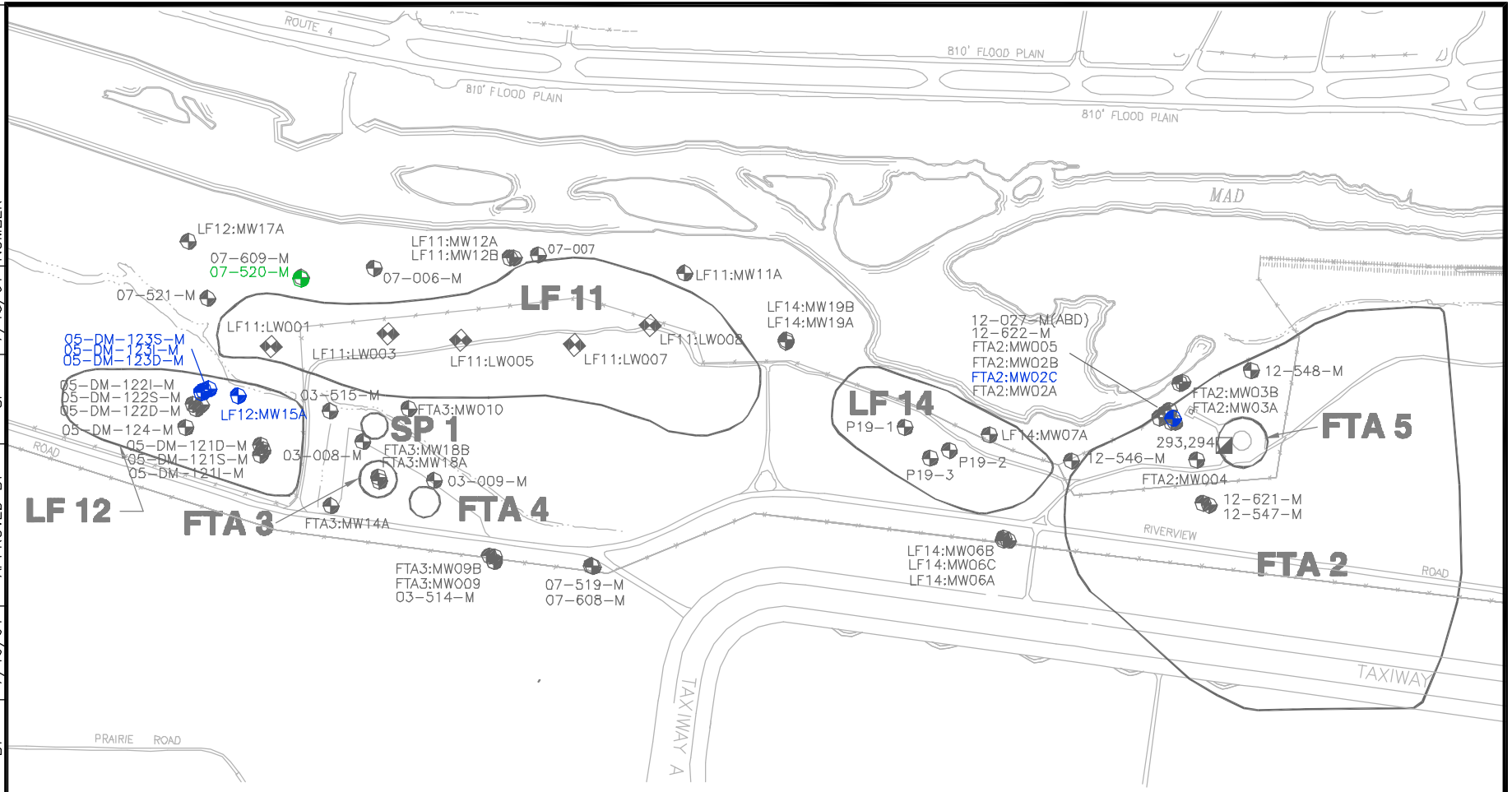
**OU2 Groundwater Level  
Elevation Contour Map:  
April 12, 2001**

PREPARED FOR  
**Wright-Patterson Air Force Base  
Dayton, Ohio**







IT CORPORATION  
11499 CHESTER ROAD  
CINCINNATI, OHIO 45246





### LEGEND

-  MONITORING WELLS WITH ANNUAL METALS & SEMI-ANNUAL VOCS ANALYSIS
-  MONITORING WELLS WITH SEMI-ANNUAL METALS ANALYSIS
-  MONITORING WELLS WITH SEMI-ANNUAL VOCS ANALYSIS
-  IRP SITES (LOCATIONS APPROXIMATE)

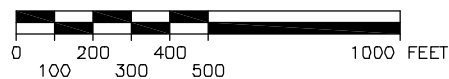
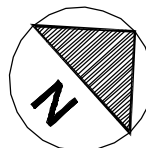


Figure 6-2

### Basewide Long-Term Monitoring Well Locations: OU3

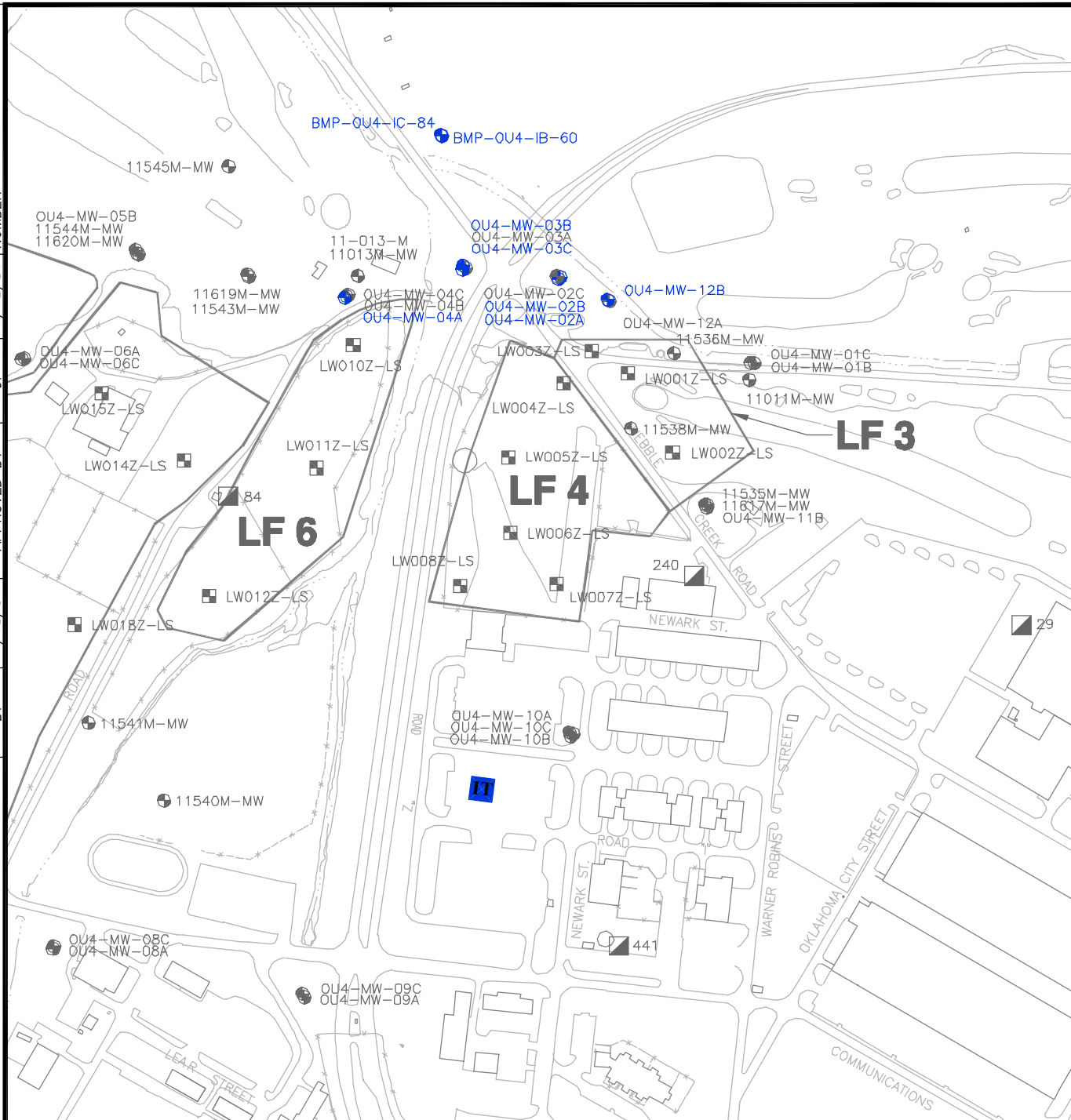
PREPARED FOR

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DRAWN BY	MSN	CHECKED BY	MC	7/18/01	DRAWING NUMBER	15-51.DWG
	7/13/01	APPROVED BY	GP	7/18/01		





**Figure 6-3**

**Basewide Long-term  
Monitoring Well Locations: OU4**

PREPARED FOR

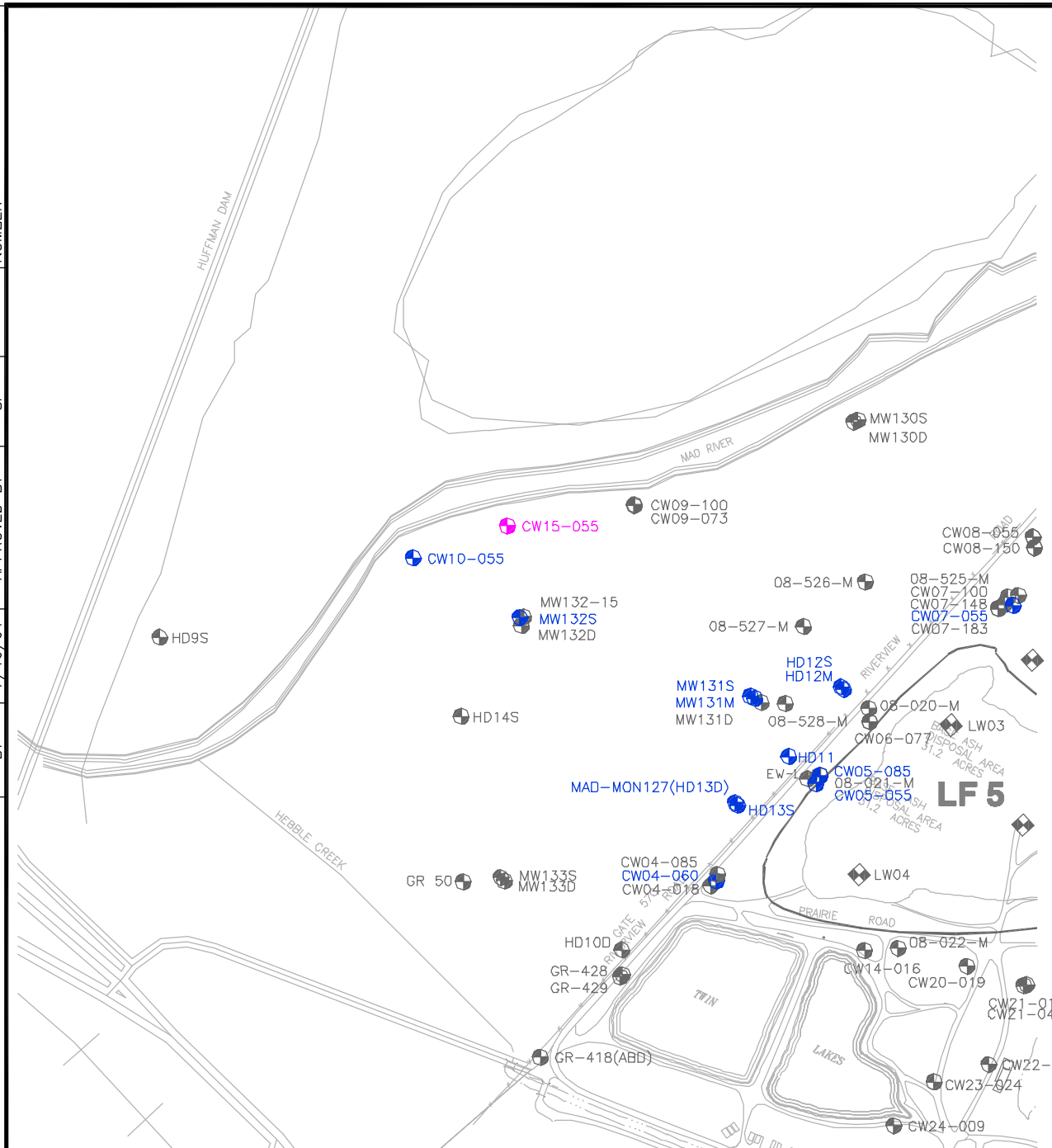
**Wright-Patterson Air Force Base  
Dayton, Ohio**

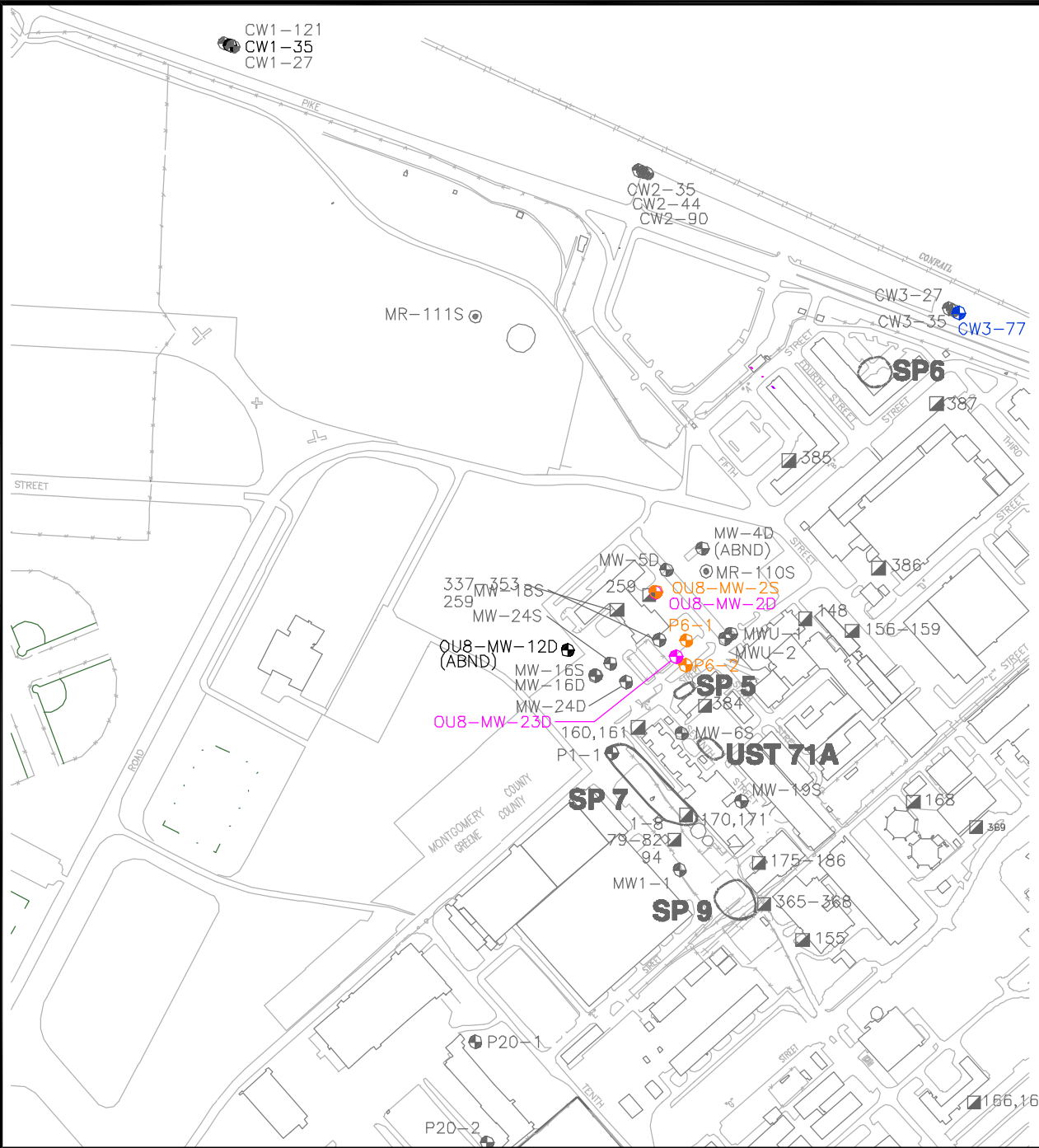
**LEGEND**

-  MONITORING WELLS WITH SEMI-ANNUAL VOCs ANALYSIS
-  IRP SITES (LOCATIONS APPROXIMATE)



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## LEGEND

- MONITORING WELLS WITH ANNUAL METALS ANALYSIS
- MONITORING WELLS WITH SEMI-ANNUAL VOCs ANALYSIS
- MONITORING WELLS WITH ANNUAL VOCs ANALYSIS

(ABND) ABANDONED

IRP SITES (LOCATIONS APPROXIMATE)

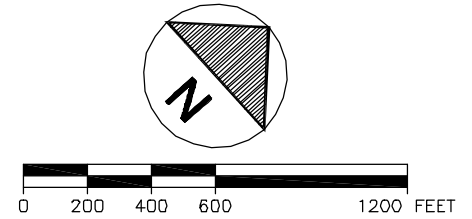


Figure 6-5

### Basewide Long-term Monitoring Well Locations: OU8

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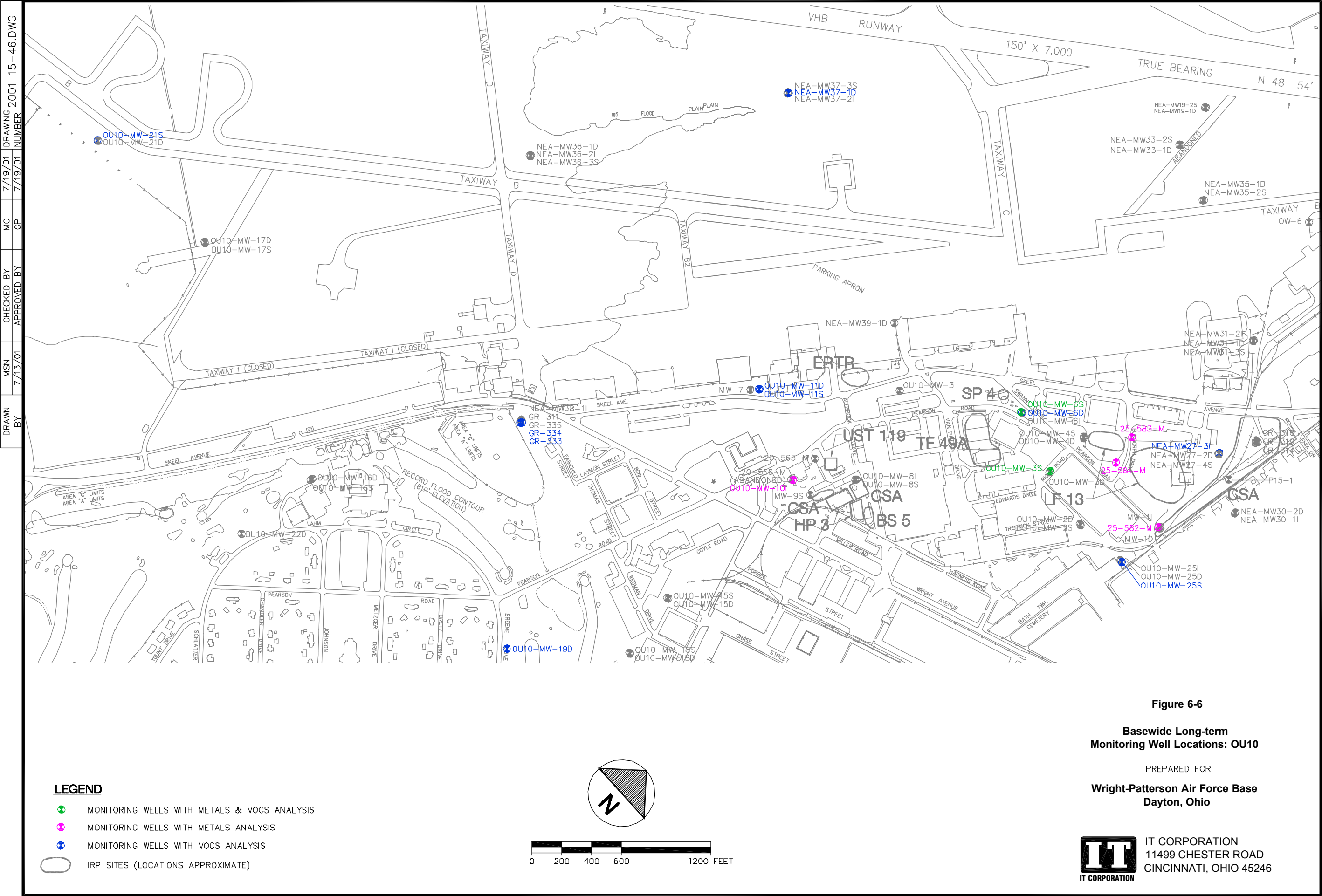


Figure 6-6  
Basewide Long-term  
Monitoring Well Locations: OU10  
PREPARED FOR  
Wright-Patterson Air Force Base  
Dayton, Ohio

DRAWN BY	MSN	CHECKED BY	MC	7/13/01	DRAWING 2001	15-05.DWG
	4/6/01	APPROVED BY	GP	7/18/01	NUMBER	

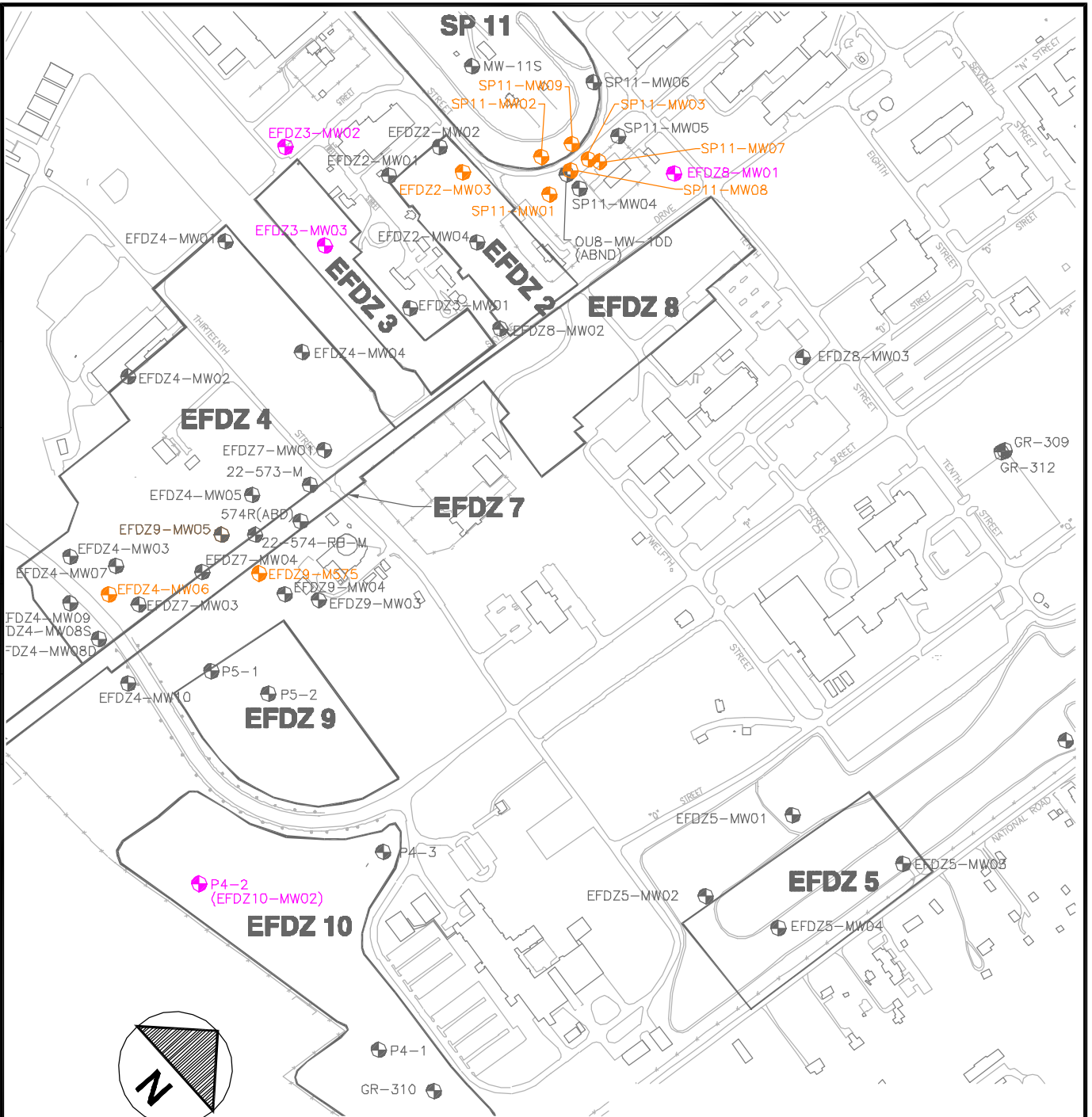


Figure 6-7

**Basewide Long-Term  
Monitoring Well Locations:  
OU9 and Spill Site 11 (FAA-B)**

PREPARED FOR

**Wright-Patterson Air Force Base  
Dayton, Ohio**

**LEGEND**



MONITORING WELLS WITH  
ANNUAL VOCs ANALYSIS



MONITORING WELLS WITH ANNUAL  
METALS ANALYSIS

(ABND) ABANDONED

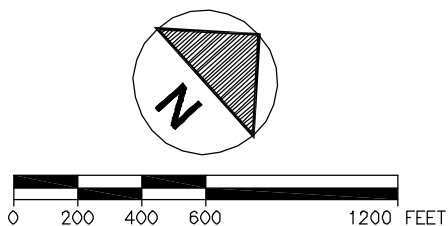
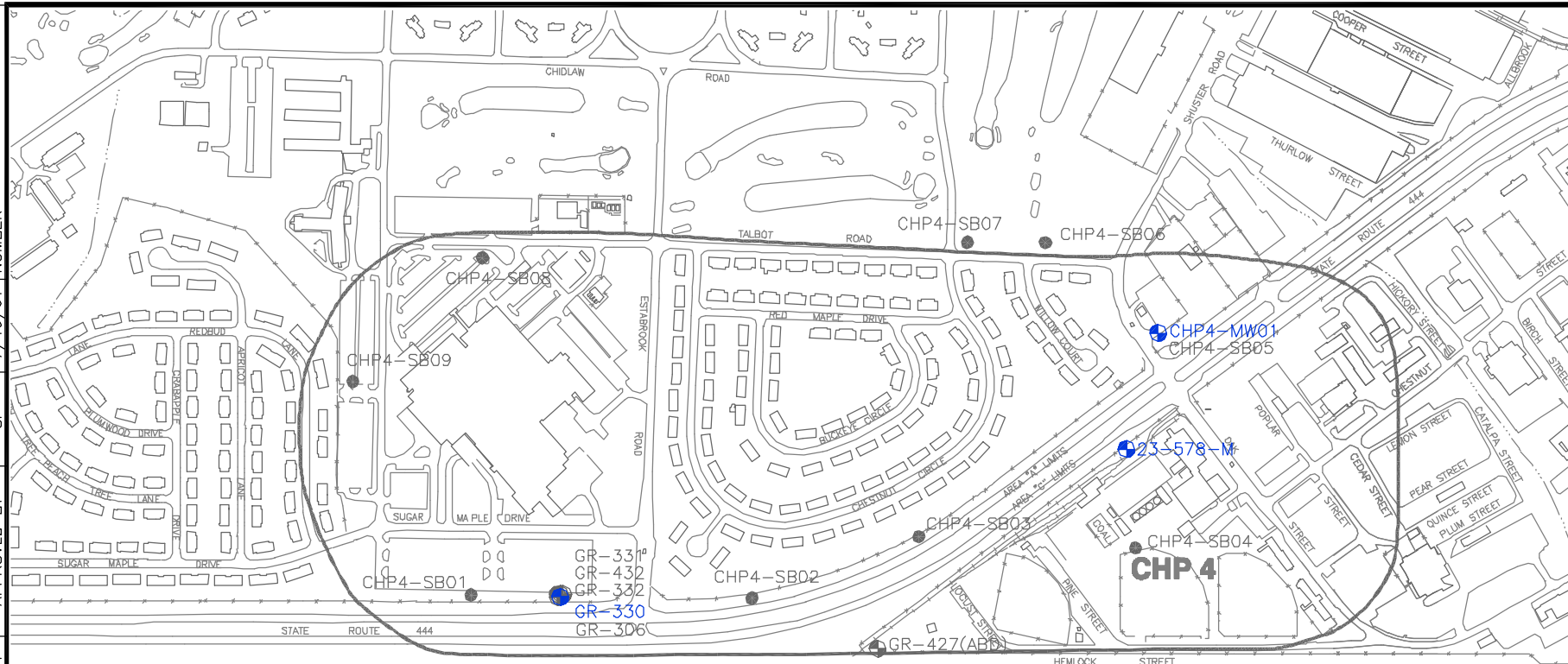


IRP SITES (LOCATIONS APPROXIMATE)



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DRAWN BY	MSN	CHECKED BY	MC	7/19/01	DRAWING NUMBER	2001 15-52.DWG
	7/3/01	APPROVED BY	GP	7/19/01		



### LEGEND



-  MONITORING WELLS WITH SEMI-ANNUAL VOCs ANALYSIS
- 2.1 VOC CONCENTRATION (RED = >MCL)
-  IRP SITES (LOCATIONS APPROXIMATE)

Figure 6-8

### Basewide Long-Term Monitoring Well Locations: Central Heating Plant 4

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DRAWN BY	MSN	CHECKED BY	MC	7/18/01	DRAWING NUMBER
	7/13/01	APPROVED BY	GP	2001 15-48.DWG	

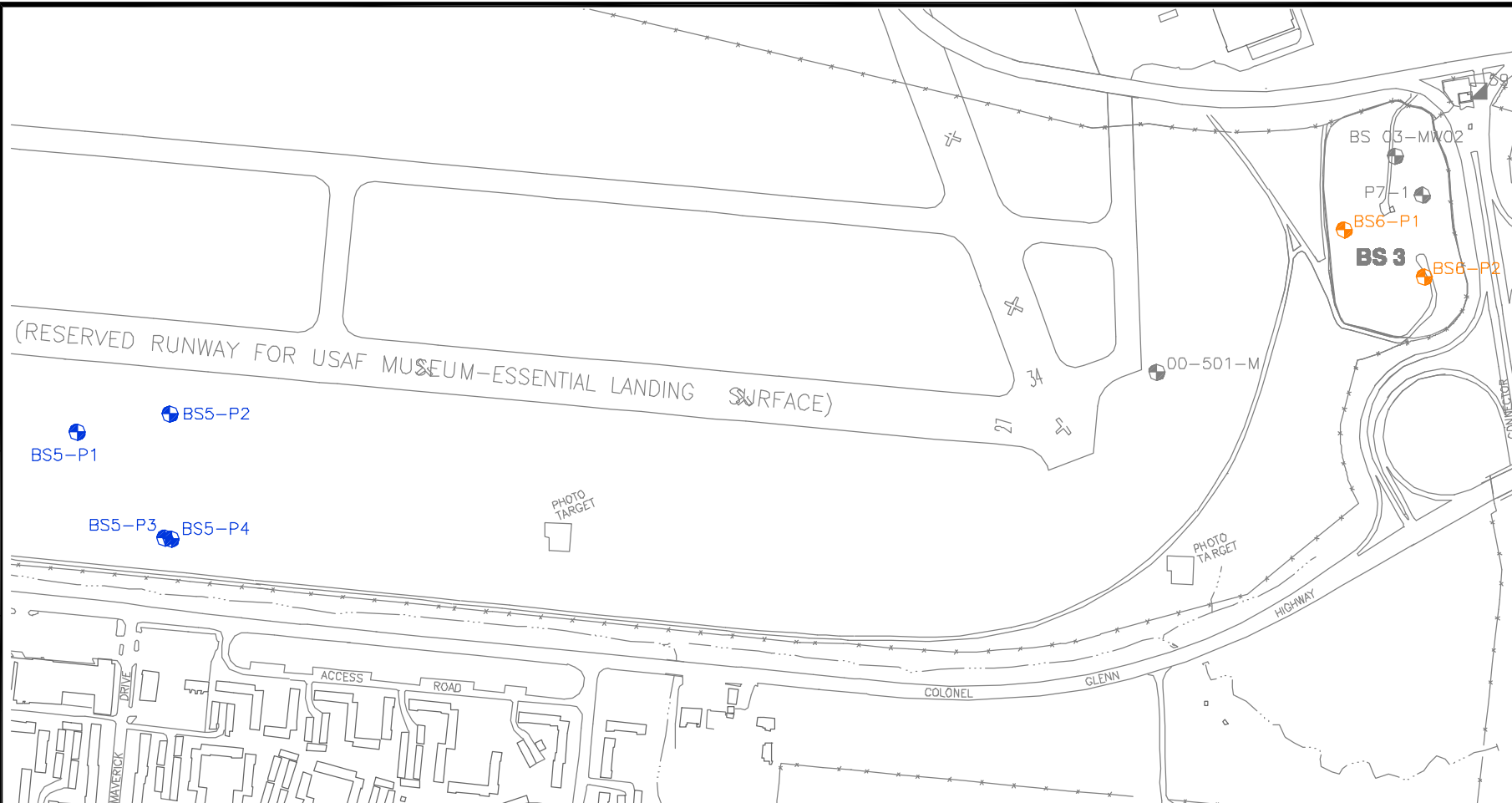




Figure 6-9

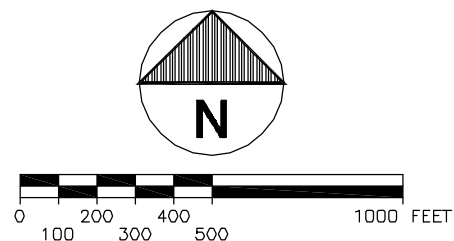
**Basewide Long-Term  
Monitoring Well Locations:  
Burial Sites 5 and 6**

PREPARED FOR

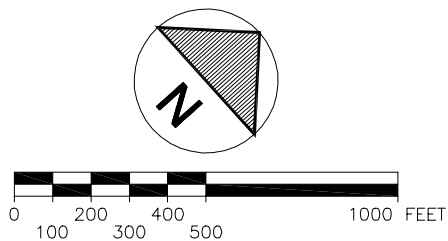
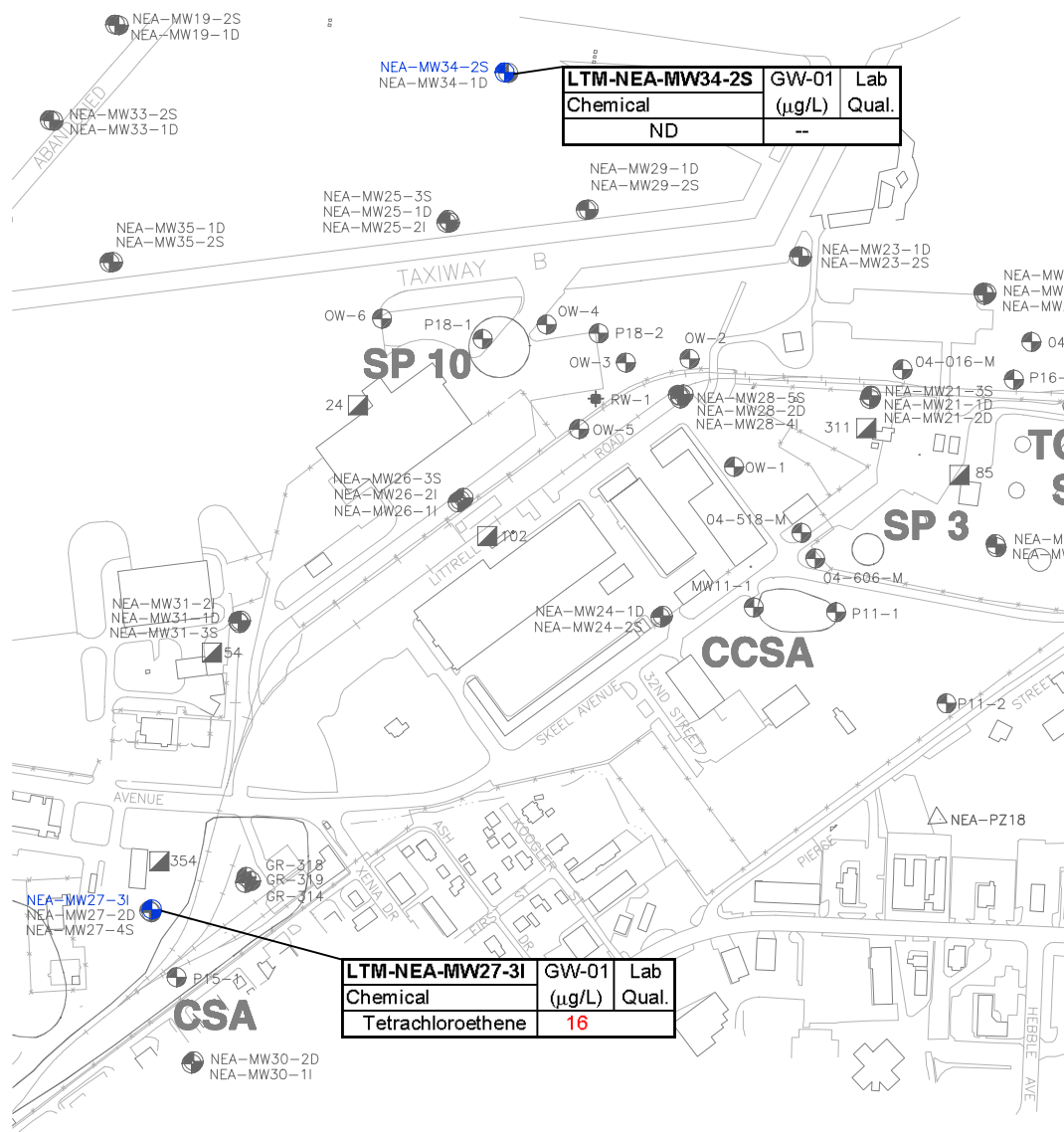
**Wright-Patterson Air Force Base  
Dayton, Ohio**

**LEGEND:**



-  MONITORING WELLS WITH ANNUAL VOCs ANALYSIS
-  MONITORING WELLS WITH SEMI-ANNUAL VOCs ANALYSIS



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### LEGEND

-  MONITORING WELLS WITH SEMI-ANNUAL VOCs ANALYSIS
- 11 VOC CONCENTRATION (RED=>MCL)
- ND NOT DETECTED
-  IRP SITES (LOCATIONS APPROXIMATE)

**Figure 6-10**

**OU2 Groundwater  
Concentrations of VOCs:  
April 2001**

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CORPORATION**

<b>LTM-07-520-M</b>	GW-01	Lab
Chemical	(µg/L)	Qual.
Total-1,2-Dichloroethene	0.37	J

<b>LTM-FTA2: MW02C</b>	GW-01	Lab
Chemical	(µg/L)	Qual.
ND	--	




<b>LTM-LF12-MW15A</b>	GW-01	Lab
Chemical	(µg/L)	Qual.
Total-1,2-Dichloroethene	0.41	J
Trichloroethene	2.4	

<b>LTM-05-DM-123D</b>	GW-01	Lab
Chemical	(µg/L)	Qual.
ND	--	

<b>LTM-05-DM-123I</b>	GW-01	Lab
Chemical	(µg/L)	Qual.
Total-1,2-Dichloroethene	0.25	J
Trichloroethene	1.9	J

<b>LTM-05-DM-123S</b>	GW-01	Lab
Chemical	(µg/L)	Qual.
Total-1,2-Dichloroethene	0.92	
Trichloroethene	2.5	

## LEGEND

-  MONITORING WELLS WITH ANNUAL METALS & SEMI-ANNUAL VOCs ANALYSIS
-  MONITORING WELLS WITH SEMI-ANNUAL VOCs ANALYSIS
- 1.8** VOC CONCENTRATION (RED=>MCL)
- ND NOT DETECTED
-  IRP SITES (LOCATIONS APPROXIMATE)

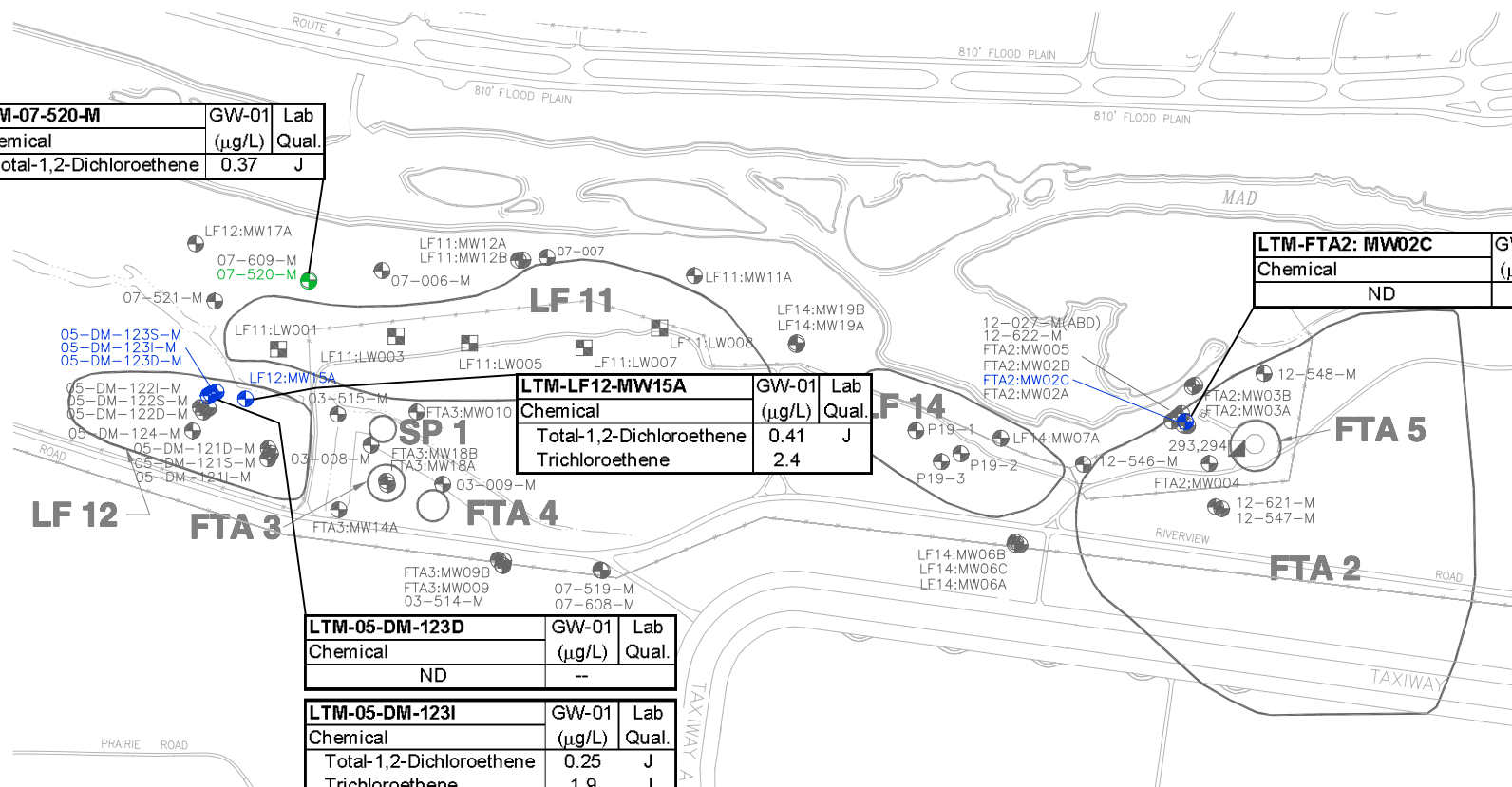
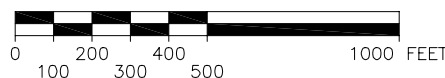
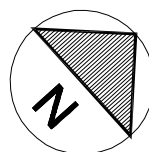


Figure 6-11

OU3 Groundwater  
 Concentrations of VOCs:  
 April 2001

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 Dayton, Ohio



INTERNATIONAL  
 TECHNOLOGY  
 CORPORATION

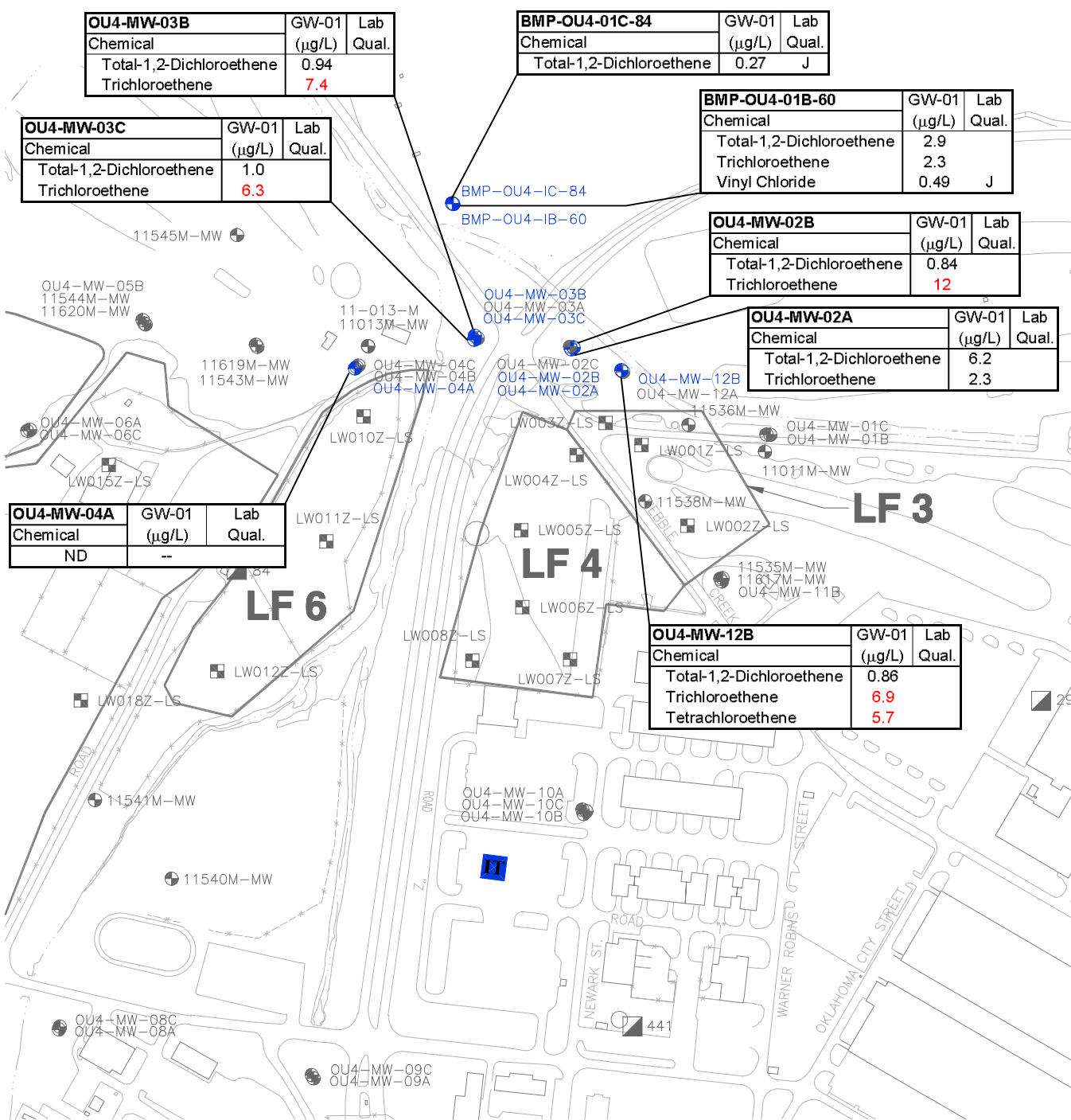


Figure 6-12

**OU4 Groundwater  
 Concentrations of VOCs:  
 April 2001**

PREPARED FOR

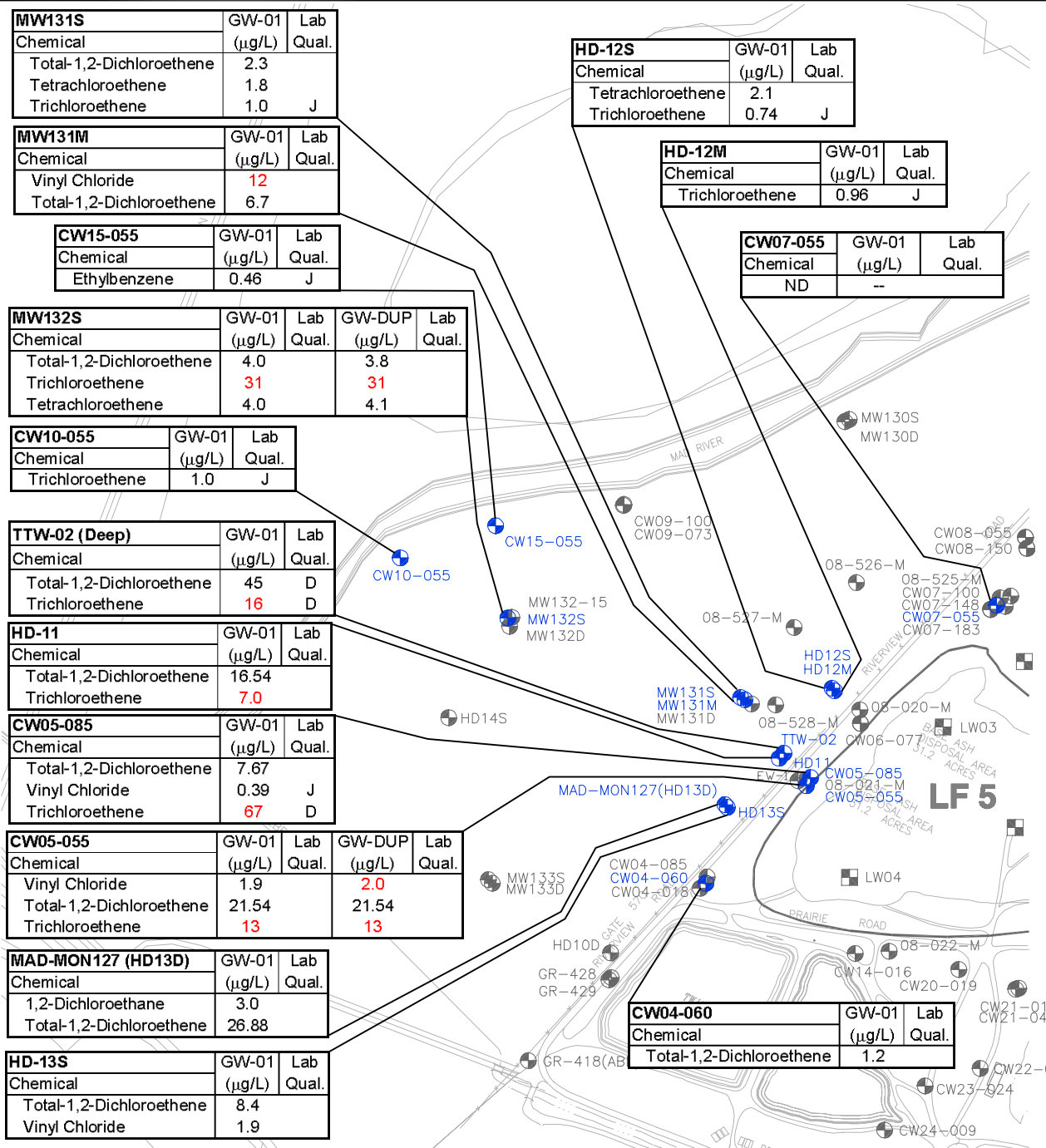
**Wright-Patterson Air Force Base  
 Dayton, Ohio**

**LEGEND**

- MONITORING WELLS WITH VOCs ANALYSIS
- ND NOT DETECTED
- 5.4 VOC CONCENTRATION (RED = >MCL)
- IRP SITES (LOCATIONS APPROXIMATE)



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 CORPORATION**



### LEGEND

- MONITORING WELLS WITH METALS ANALYSIS
- MONITORING WELLS WITH VOCs ANALYSIS
- 1.2 VOC CONCENTRATION (RED=>MCL)
- ND NOT DETECTED
- IRP SITES (LOCATIONS APPROXIMATE)

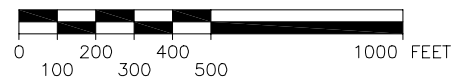
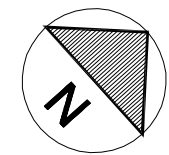


Figure 6-13

### OU5 Groundwater Concentrations of VOCs: April 2001

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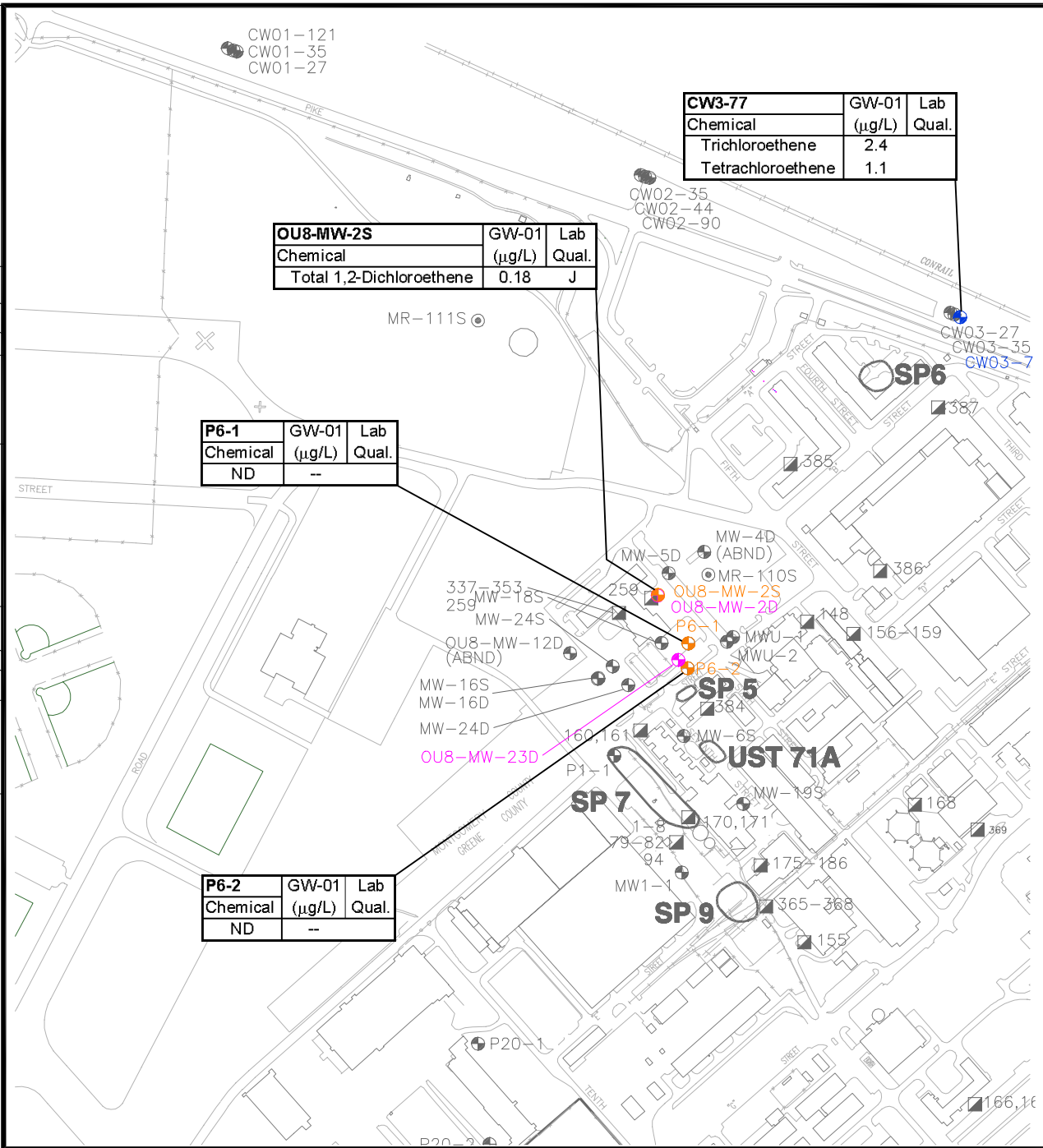


Figure 6-14

OU8 Groundwater  
 Concentrations of VOCs:  
 April 2001

PREPARED FOR

Wright-Patterson Air Force Base  
 Dayton, Ohio



INTERNATIONAL  
 TECHNOLOGY  
 CORPORATION

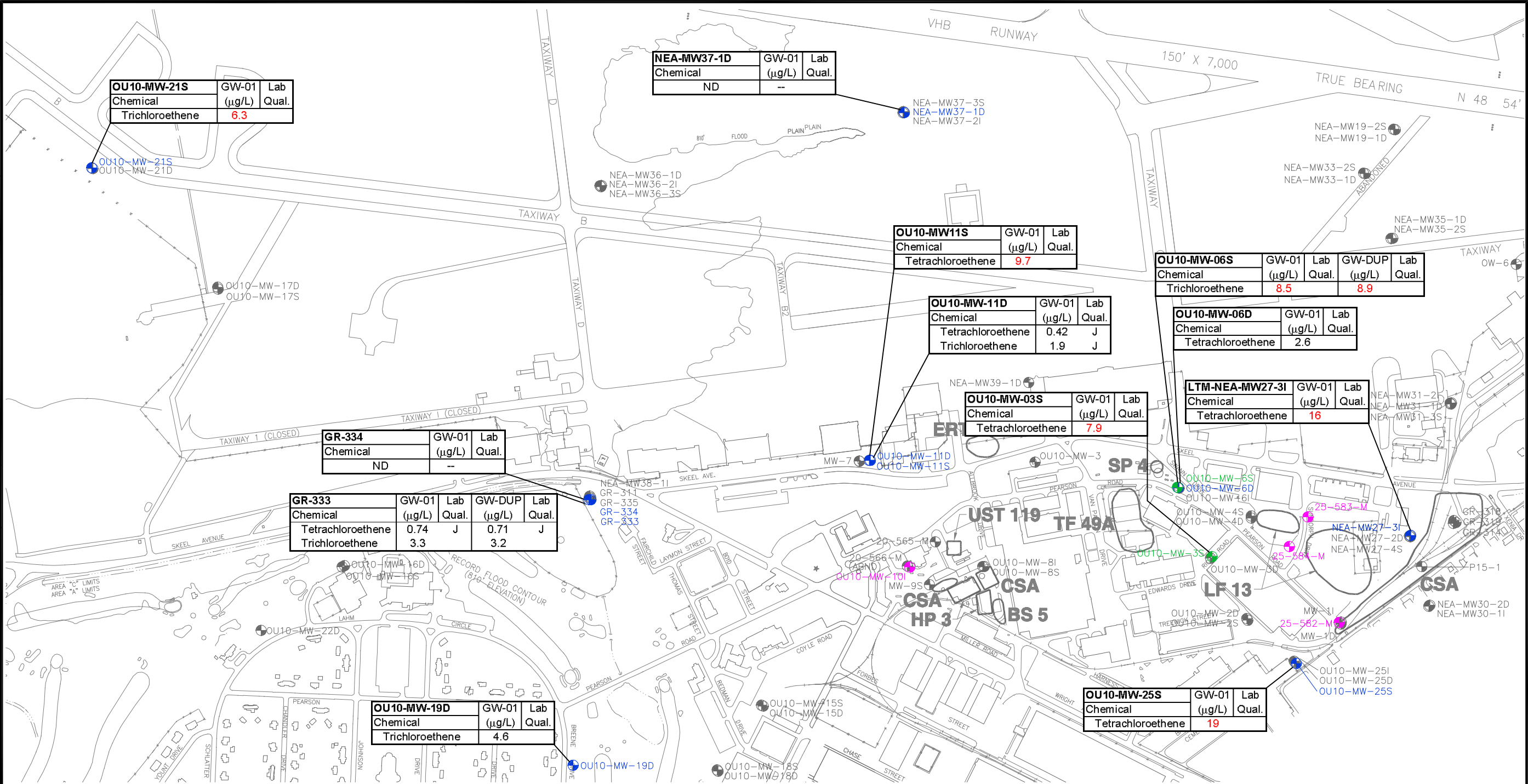


Figure 6-15

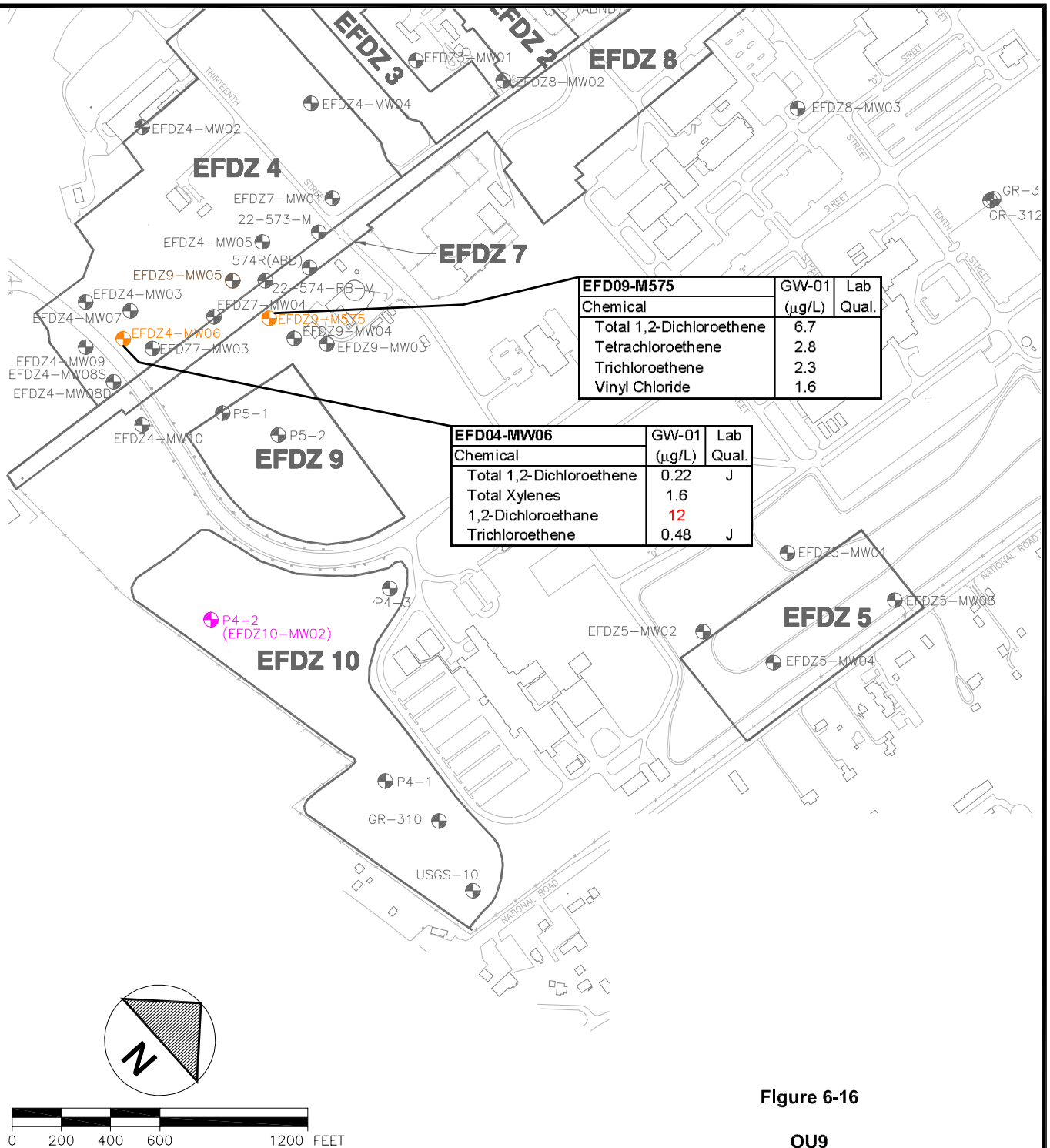
OU10 Groundwater  
Concentrations of VOCs  
April 2001

PREPARED FOR

Wright-Patterson Air Force Base  
Dayton, Ohio



INTERNATIONAL  
TECHNOLOGY  
CORPORATION



### LEGEND

- MONITORING WELLS WITH ANNUAL METALS ANALYSIS
- MONITORING WELLS WITH ANNUAL VOCs ANALYSIS
- 13** VOC CONCENTRATION (**RED** = >MCL)
- (ABND) ABANDONED
- ND NOT DETECTED
- IRP SITES (LOCATIONS APPROXIMATE)

Figure 6-16

**OU9**  
**Groundwater Concentration of VOCs:**  
**April 2001**

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**Dayton, Ohio**



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 CORPORATION**

SP11-MW09	GW-01	Lab
Chemical	(µg/L)	Qual.
Total 1,2-Dichloroethene	28.1	
Trichloroethene	4.6	
Vinyl Chloride	4.0	

SP11-MW02	GW-01	Lab
Chemical	(µg/L)	Qual.
Total 1,2-Dichloroethene	3.65	J
Trichloroethene	0.34	J
Vinyl Chloride	0.48	J

EFDZ02-MW03	GW-01	Lab
Chemical	(µg/L)	Qual.
Trichloroethene	0.40	J
Total 1,2-Dichloroethene	0.18	J

SP11-MW03	GW-01	Lab
Chemical	(µg/L)	Qual.
Total 1,2-Dichloroethene	175.2	D
Trichloroethene	74	D
Vinyl Chloride	120	D

SP11-MW07	GW-01	Lab
Chemical	(µg/L)	Qual.
Total 1,2-Dichloroethene	596	D
Trichloroethene	57	D
Vinyl Chloride	54	D

SP11-MW08	GW-01	Lab
Chemical	(µg/L)	Qual.
Benzene	0.41	J
Total 1,2-Dichloroethene	21.1	
Vinyl Chloride	11	

SP11-MW01	GW-01	Lab
Chemical	(µg/L)	Qual.
Total 1,2-Dichloroethene	9.0	
Vinyl Chloride	17	

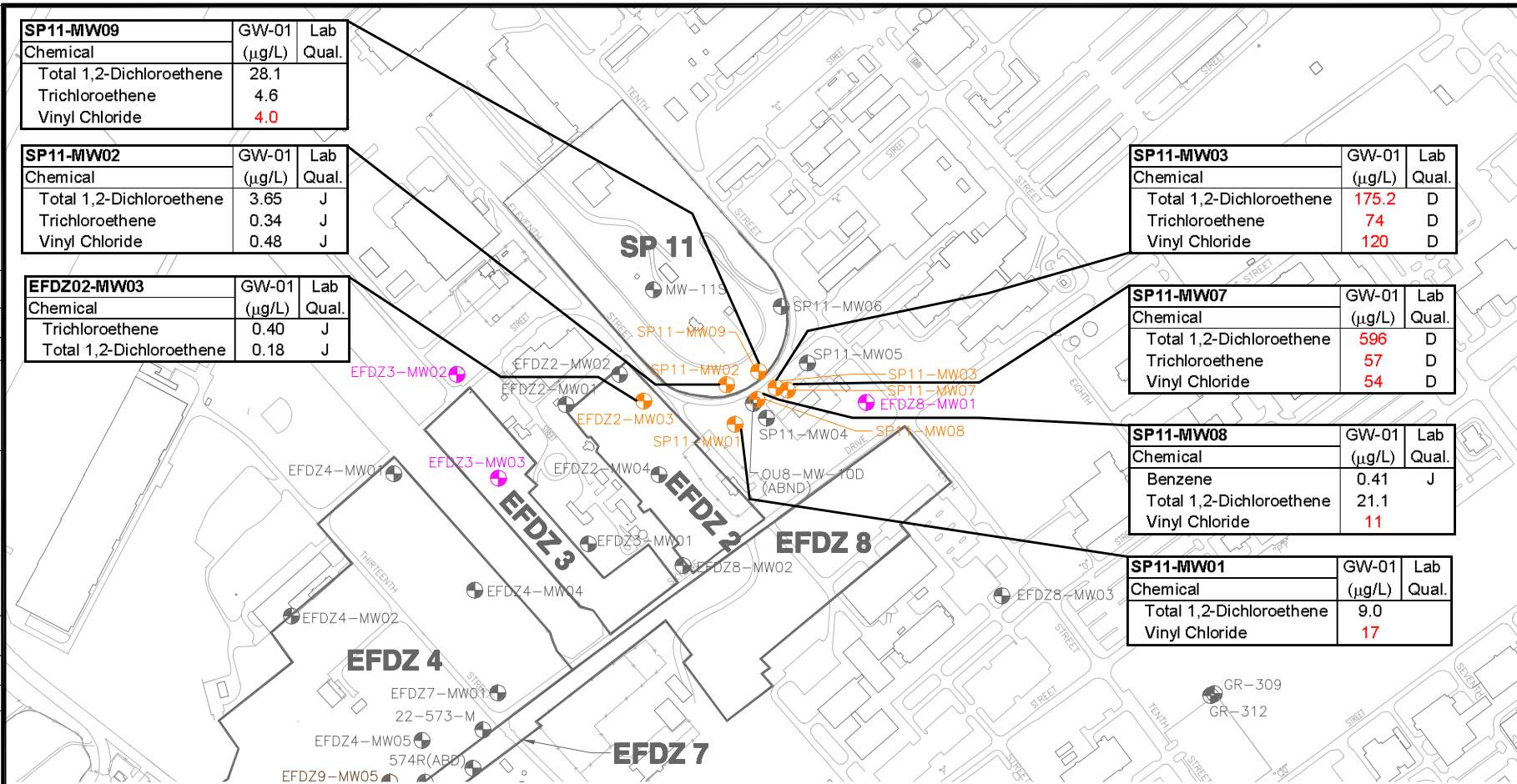


Figure 6-16a

**Spill Site 11 (FAA-B)**  
**Groundwater Concentration of VOCs:**  
**April 2001**

PREPARED FOR

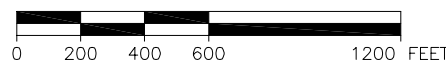
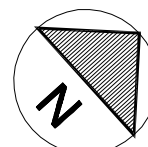
**Wright-Patterson Air Force Base**  
**Dayton, Ohio**



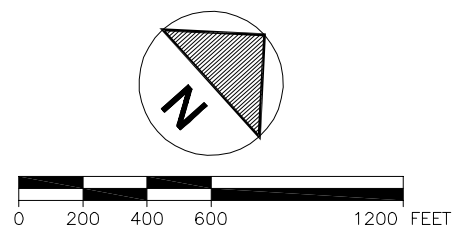
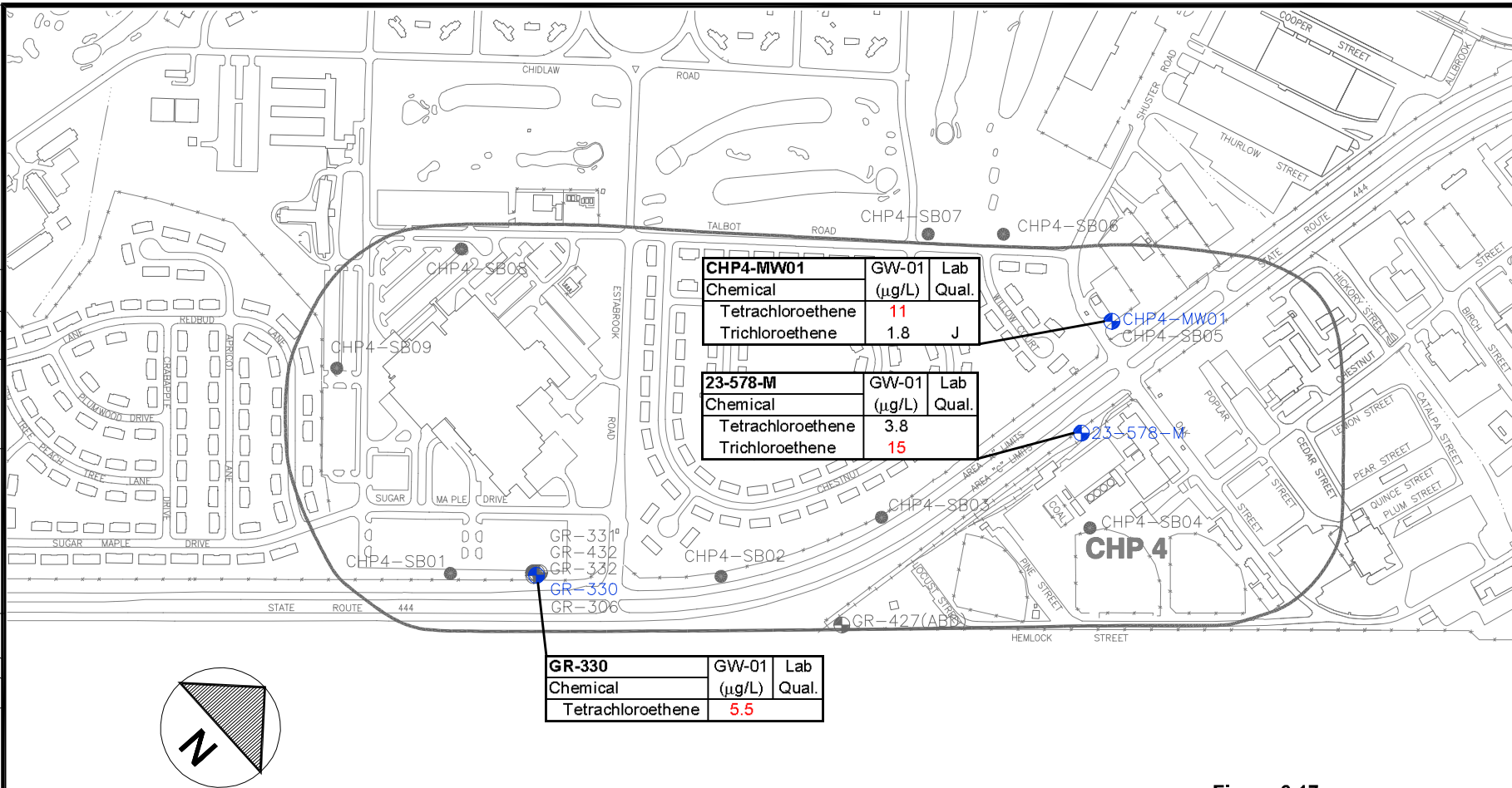
**IT CORPORATION**  
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**LEGEND**

- MONITORING WELLS WITH ANNUAL METALS ANALYSIS
- MONITORING WELLS WITH ANNUAL VOCs ANALYSIS
- 13** VOC CONCENTRATION (RED = >MCL)
- (ABND) ABANDONED
- ND NOT DETECTED
- IRP SITES (LOCATIONS APPROXIMATE)



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 MSN  
 7/3/01  
 CHECKED BY  
 MC  
 7/9/01  
 APPROVED BY  
 GP  
 7/9/01  
 NUMBER  
 15-25.DWG



**LEGEND**

- MONITORING WELLS WITH SEMI-ANNUAL VOCs ANALYSIS
- 2.1 VOC CONCENTRATION (RED = >MCL)
- IRP SITES (LOCATIONS APPROXIMATE)

**Figure 6-17**  
**Central Heating Plant 4**  
**Groundwater Concentrations of VOCs:**  
**April 2001**

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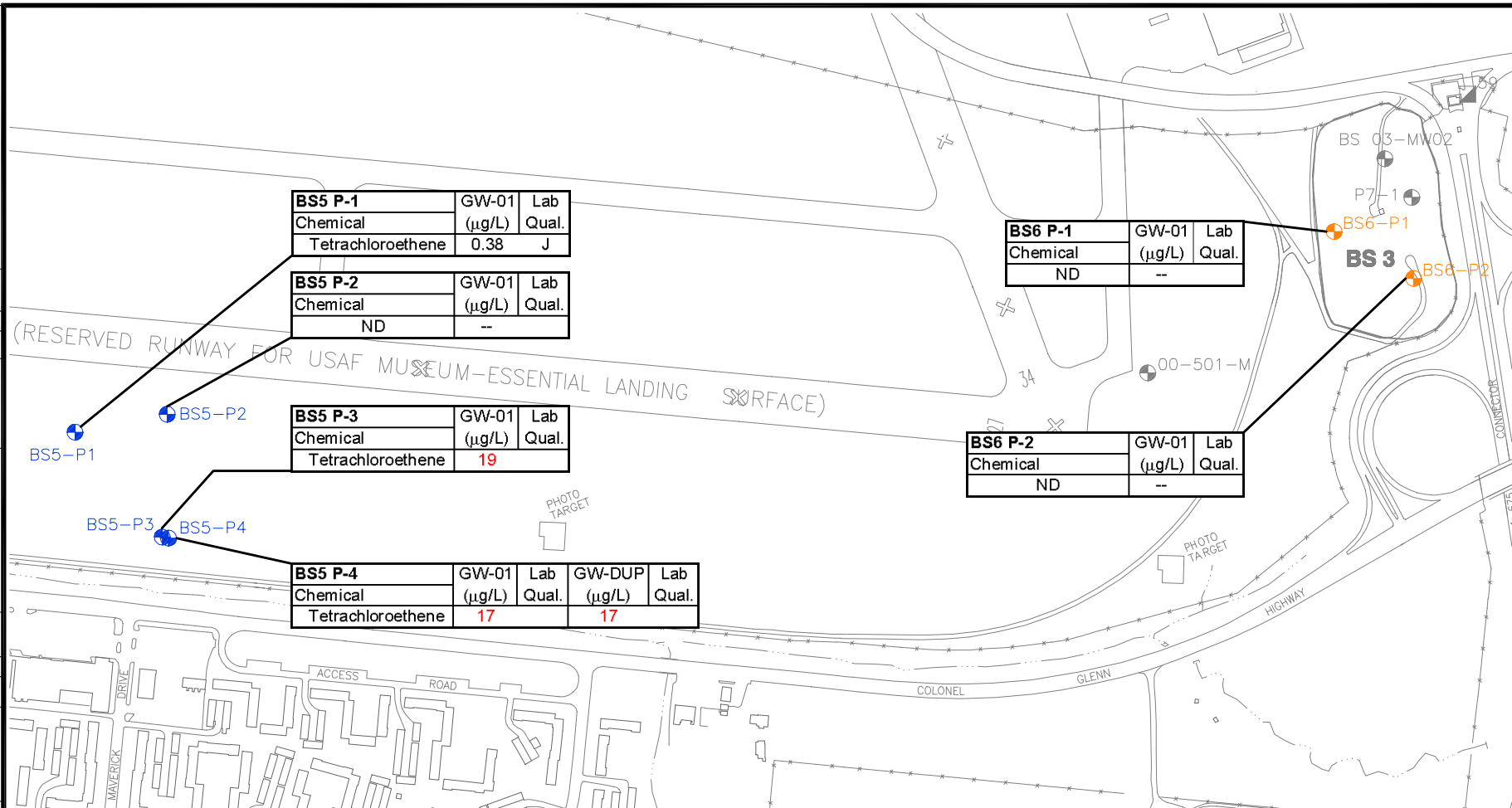


Figure 6-18

**Burial Site 5 and 6**  
**Groundwater Concentrations of VOCs:**  
**April 2001**

PREPARED FOR

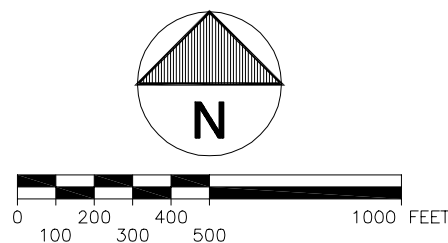
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**LEGEND:**

- MONITORING WELLS WITH ANNUAL VOCs ANALYSIS
- MONITORING WELLS WITH SEMI-ANNUAL VOCs ANALYSIS
- 25 VOC CONCENTRATION (RED = >MCL)



DRAWING 2001 15-27.DWG  
7/9/01  
7/9/01  
MC  
GP  
7/6/01  
MSN  
BY

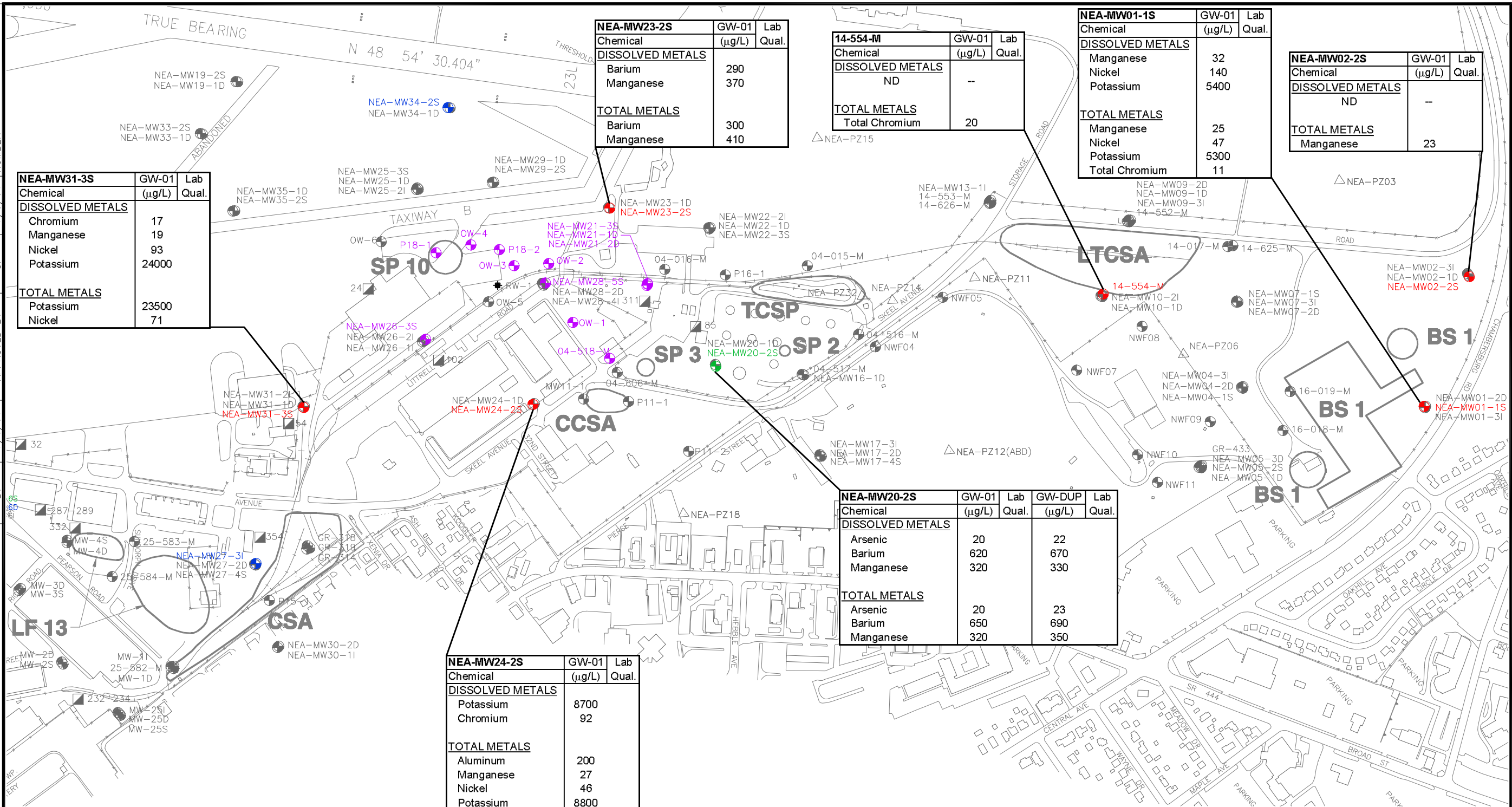


Figure 6-19

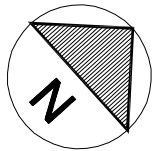
OU2 Groundwater  
Concentrations of Metals: April 2001

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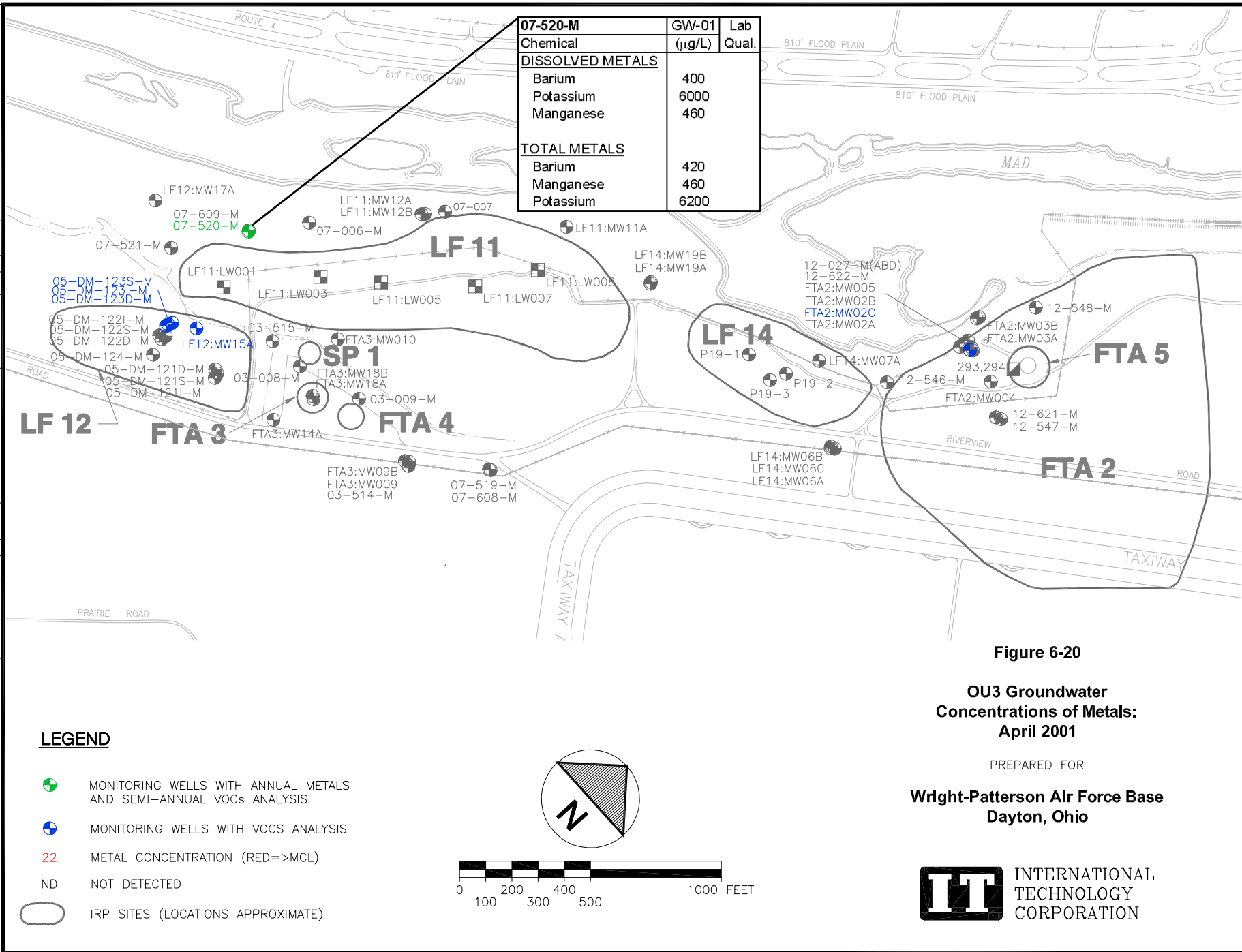
LEGEND

- OU2 ROD MONITORING WELL WITH SEMI-ANNUAL BTEX ANALYSIS
- OU2 ROD MONITORING WELL WITH ANNUAL METALS ANALYSIS
- LTM MONITORING WELL WITH ANNUAL METALS ANALYSIS
- LTM MONITORING WELL WITH SEMI-ANNUAL VOCs ANALYSIS
- IRP SITES (LOCATIONS APPROXIMATE)



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 CHECKED BY MC 7/9/01  
 APPROVED BY GP 7/9/01  
 DRAWING NUMBER 15-28.DWG

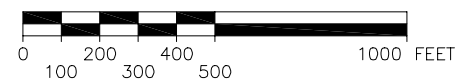
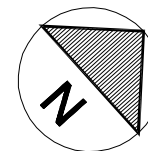


<b>CW15-055</b>	GW-01	Lab
Chemical	(µg/L)	Qual.
No Metals Sample Collected		

<b>HD-11</b>	GW-01	Lab
Chemical	(µg/L)	Qual.
<b>DISSOLVED METALS</b>		
Not Collected		
<b>TOTAL METALS</b>		
Aluminum	360	
Manganese	100	

## LEGEND

-  MONITORING WELLS WITH ANNUAL METALS ANALYSIS
-  MONITORING WELLS WITH SEMI-ANNUAL VOCs ANALYSIS
- 310** METAL CONCENTRATION (RED=>MCL)
- ND NOT DETECTED
-  IRP SITES (LOCATIONS APPROXIMATE)



**Figure 6-21**

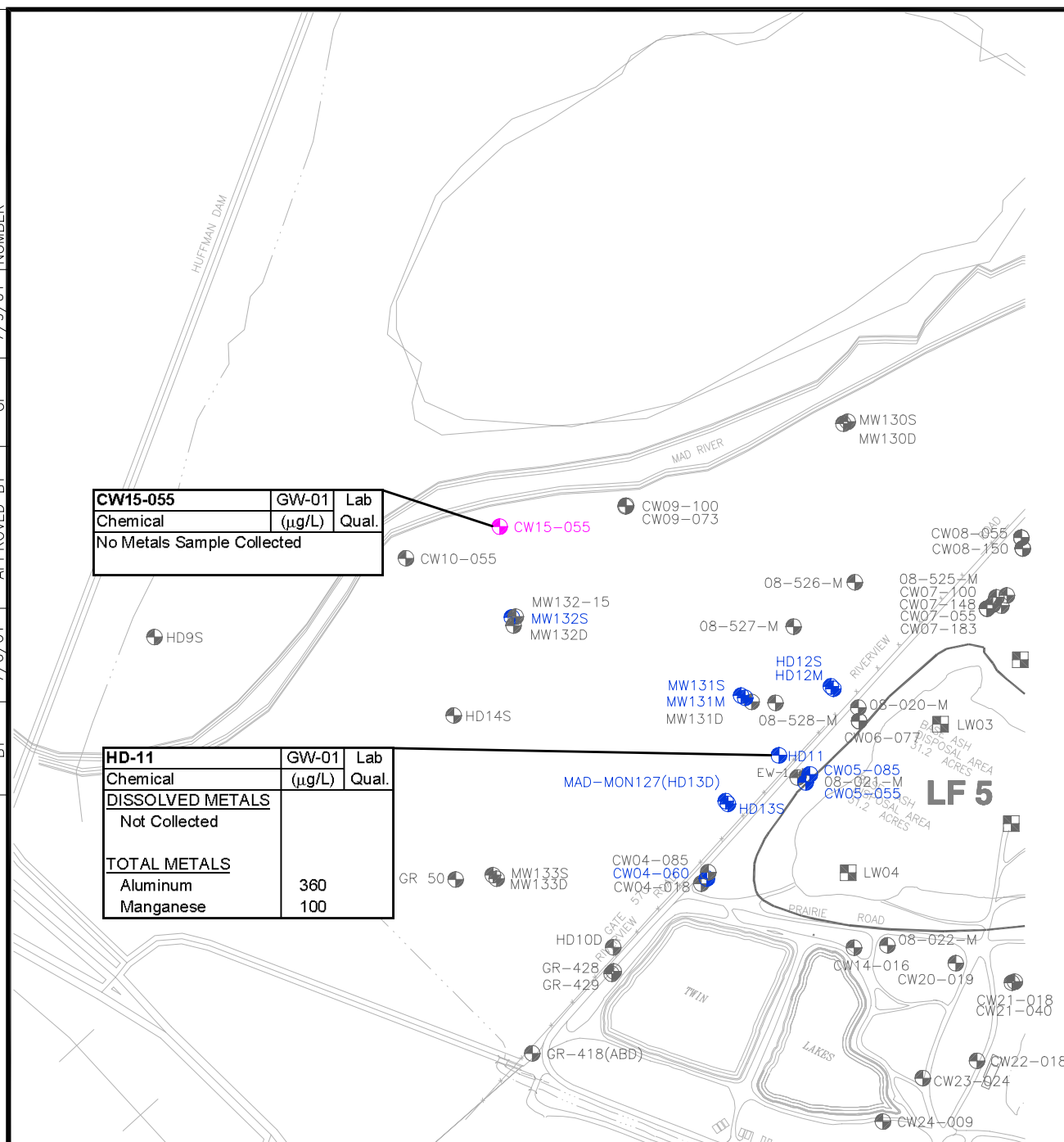
### OU5 Groundwater Concentrations of Metals: April 2001

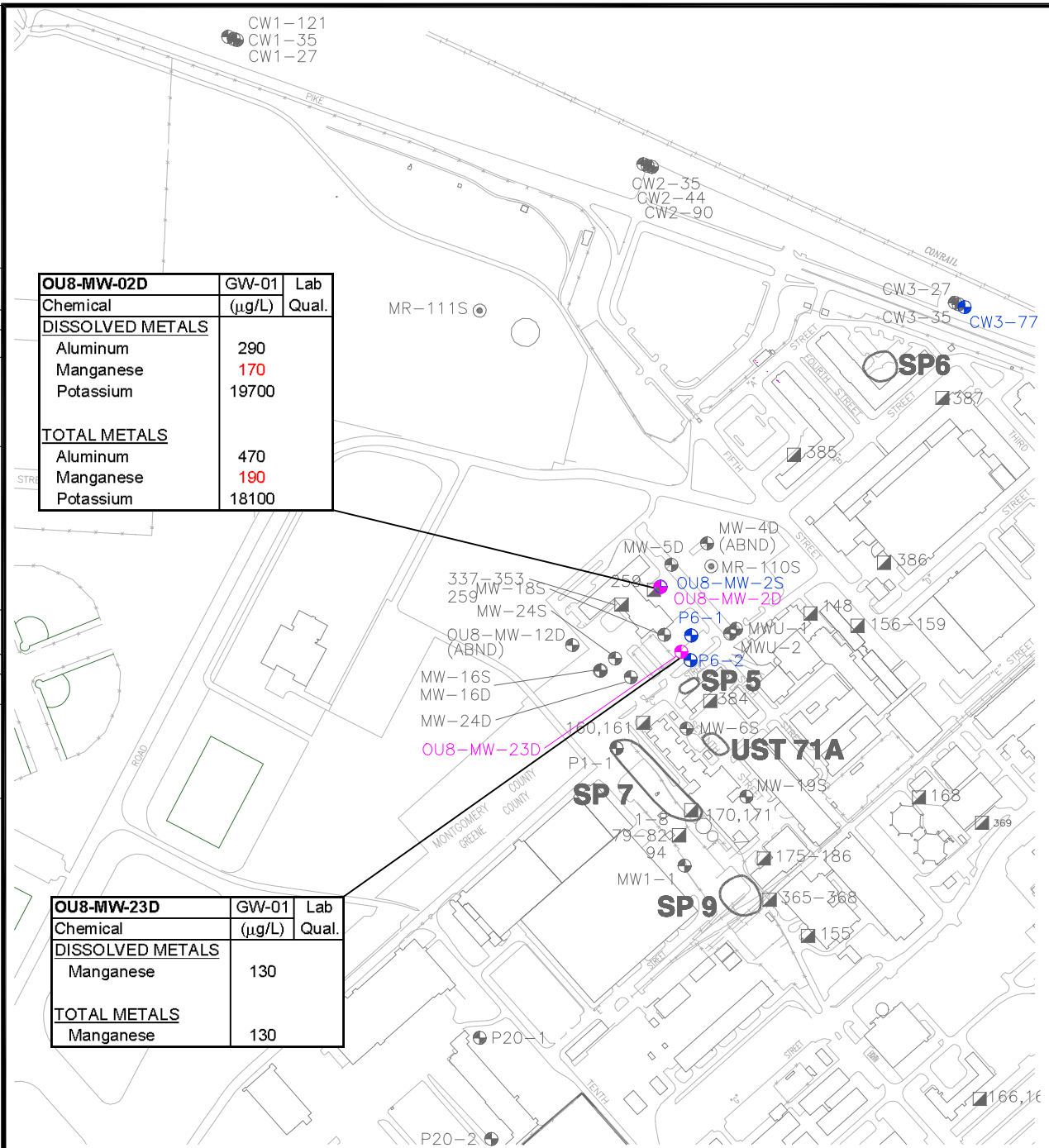
PREPARED FOR

**Wright-Patterson Air Force Base  
Dayton, Ohio**



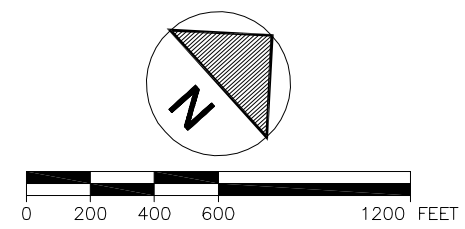
**INTERNATIONAL  
TECHNOLOGY  
CORPORATION**





### LEGEND

- MONITORING WELLS WITH ANNUAL METALS ANALYSIS
- MONITORING WELLS WITH SEMI-ANNUAL VOCs ANALYSIS
- 540 METAL CONCENTRATION (RED=>MCL)
- (ABND) ABANDONED
- ND NOT DETECTED
- IRP SITES (LOCATIONS APPROXIMATE)



**Figure 6-22**

**OU8 Groundwater Concentrations of Metals: April 2001**

PREPARED FOR

**Wright-Patterson Air Force Base**  
**Dayton, Ohio**



DRAWN BY: MSN 7/6/01  
 CHECKED BY: MC 8/15/01  
 APPROVED BY: GP 8/15/01  
 NUMBER: 15-32.DWG

EFDZ03-MW02	GW-01	Lab
Chemical	(µg/L)	Qual.
<b>DISSOLVED METALS</b>		
Manganese	36	
<b>TOTAL METALS</b>		
Total Chromium	15	
Manganese	42	

EFDZ03-MW03	GW-01	Lab
Chemical	(µg/L)	Qual.
<b>DISSOLVED METALS</b>		
ND	--	
<b>TOTAL METALS</b>		
ND	--	

EFDZ08-MW01	GW-01	Lab
Chemical	(µg/L)	Qual.
<b>DISSOLVED METALS</b>		
Aluminum	200	
Chromium	21	
Manganese	25	
Nickel	190	
Potassium	25800	
<b>TOTAL METALS</b>		
Aluminum	560	
Barium	200	
Manganese	41	
Nickel	280	
Potassium	29800	
Total Chromium	43	

EFDZ10-MW02 (P4-2)	GW-01	Lab
Chemical	(µg/L)	Qual.
<b>DISSOLVED METALS</b>		
Manganese	26	
<b>TOTAL METALS</b>		
Aluminum	1400	
Total Chromium	120	
Manganese	52	

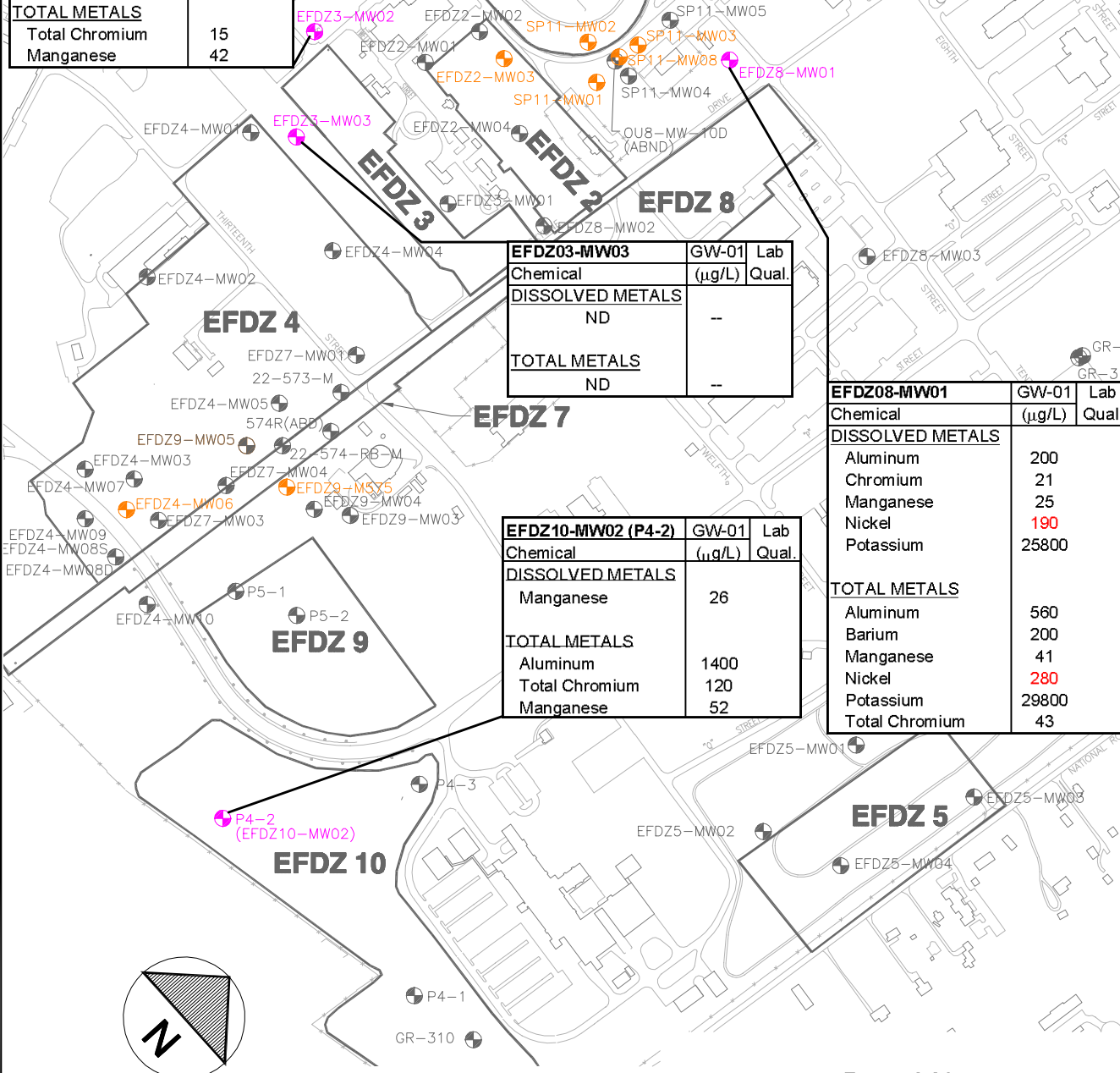


Figure 6-24

**OU9 Groundwater  
 Concentrations of Metals:  
 April 2001**

PREPARED FOR

**Wright-Patterson Air Force Base  
 Dayton, Ohio**

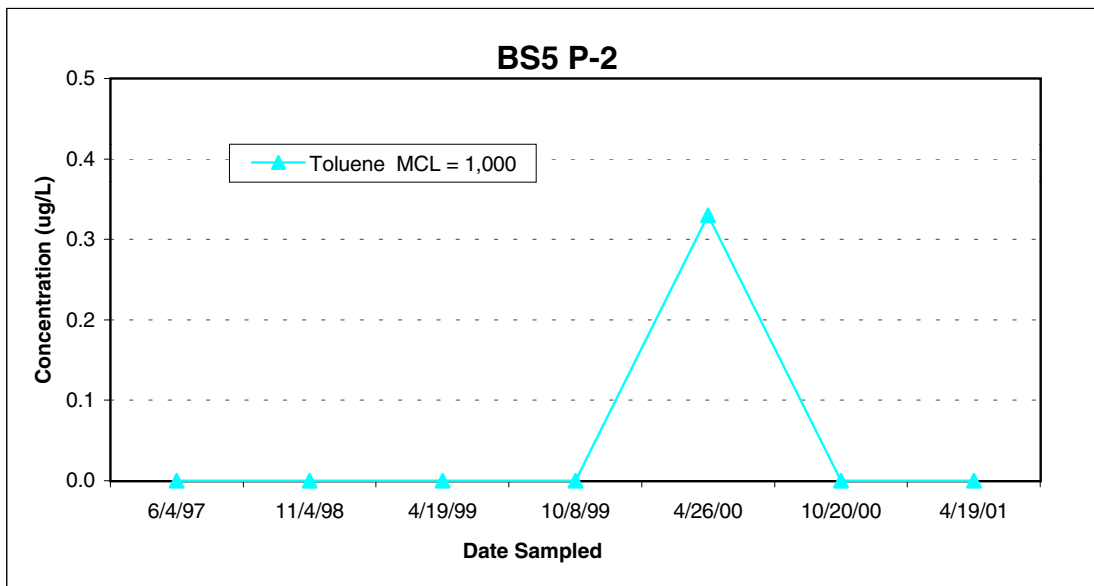
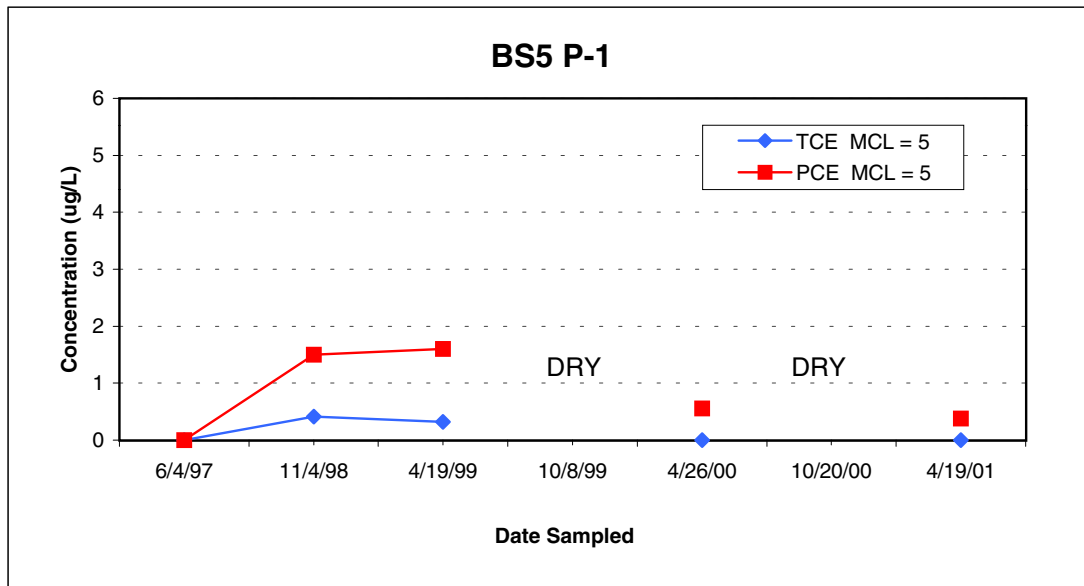


**INTERNATIONAL  
 TECHNOLOGY  
 CORPORATION**

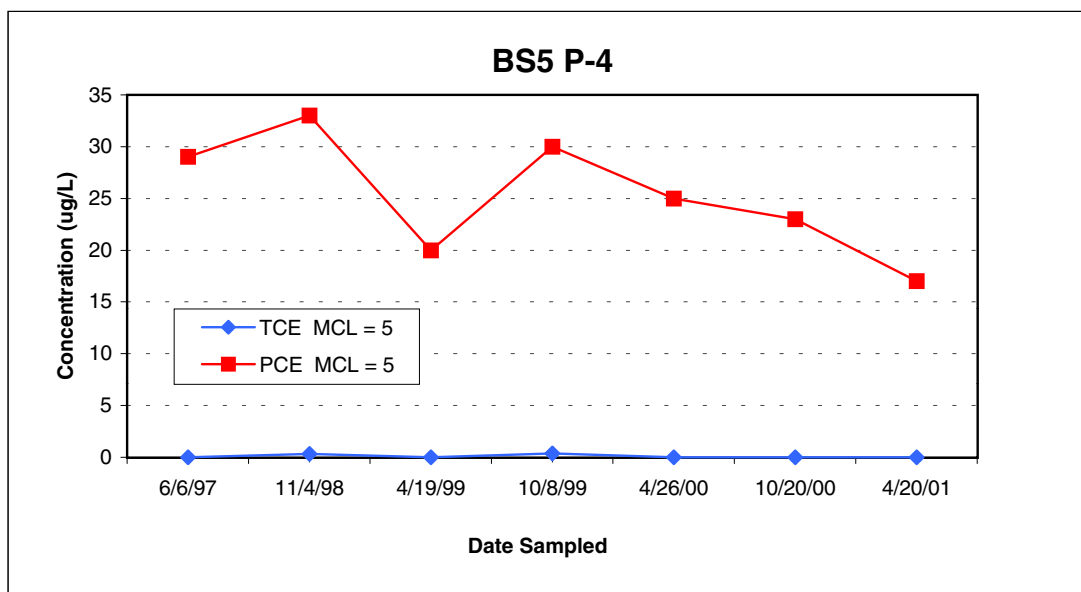
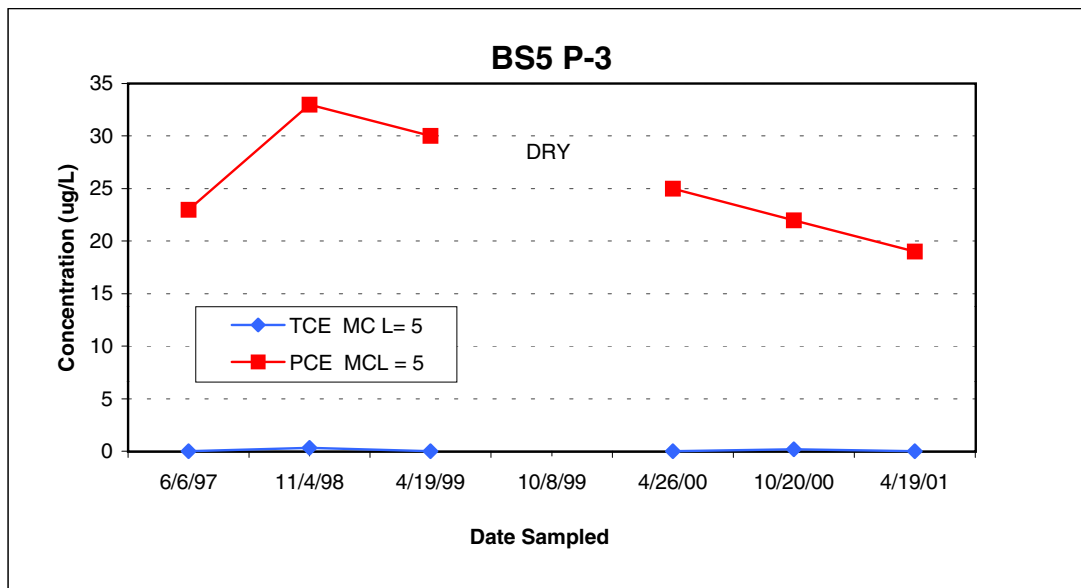
**LEGEND**

- MONITORING WELLS WITH ANNUAL METALS ANALYSIS
- MONITORING WELLS WITH ANNUAL VOCs ANALYSIS
- 160 METALS CONCENTRATION (RED = >MCL)
- (ABND) ABANDONED
- ND NOT DETECTED
- IRP SITES (LOCATIONS APPROXIMATE)

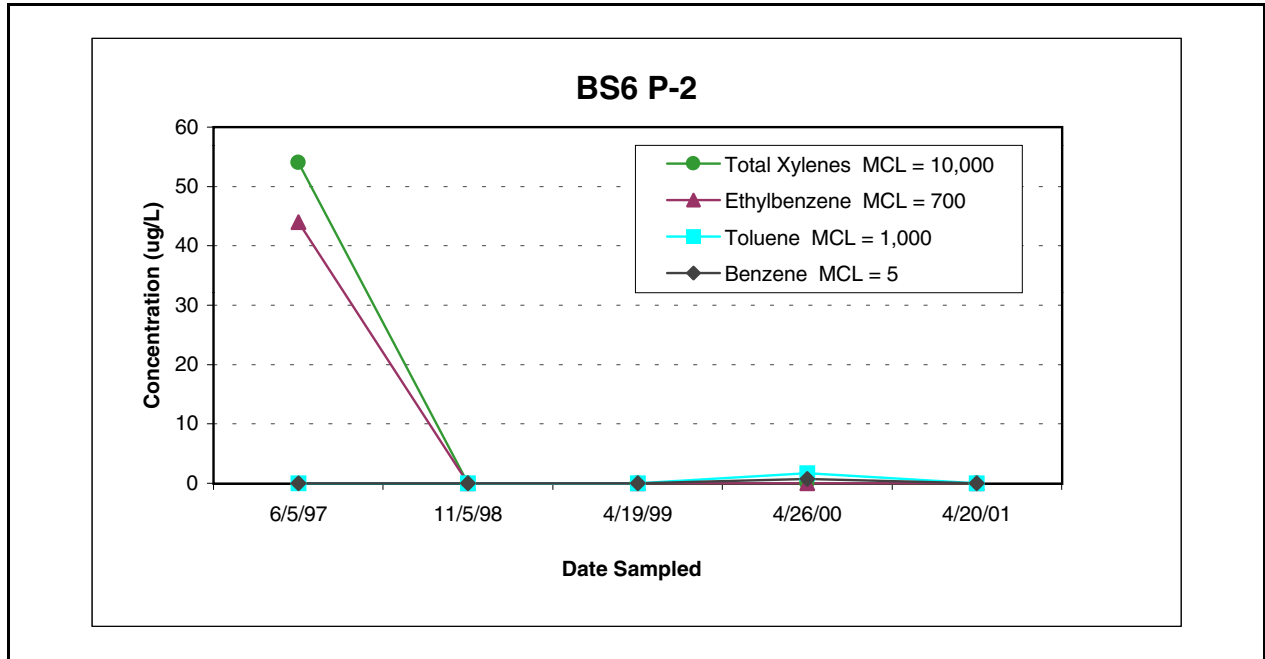
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: BS5**  
**WPAFB - LTM Program**



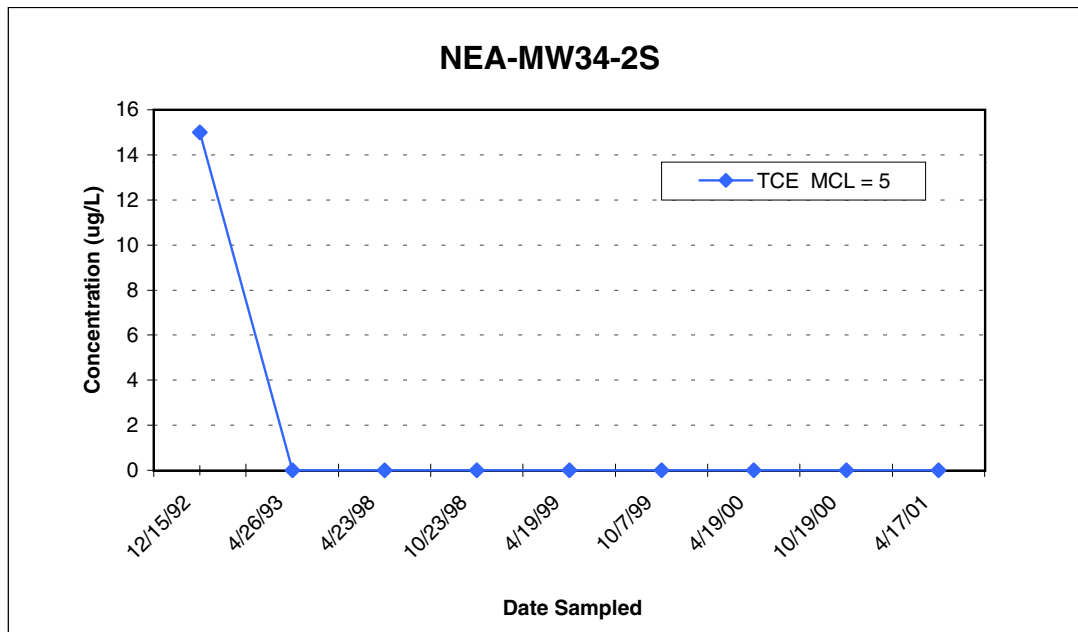
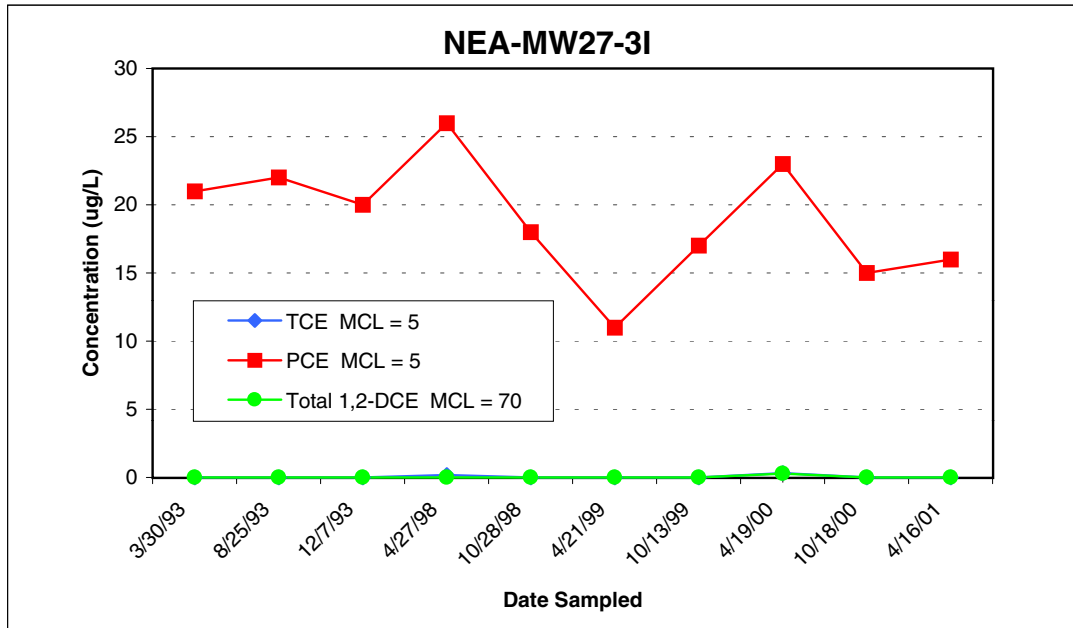
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: BS5**  
WPAFB - LTM Program



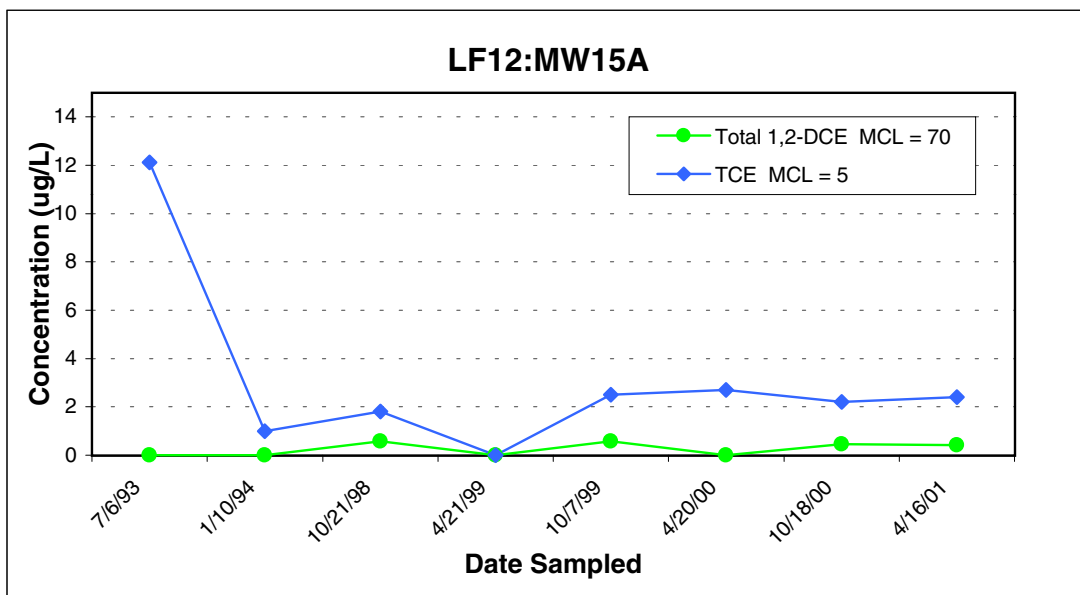
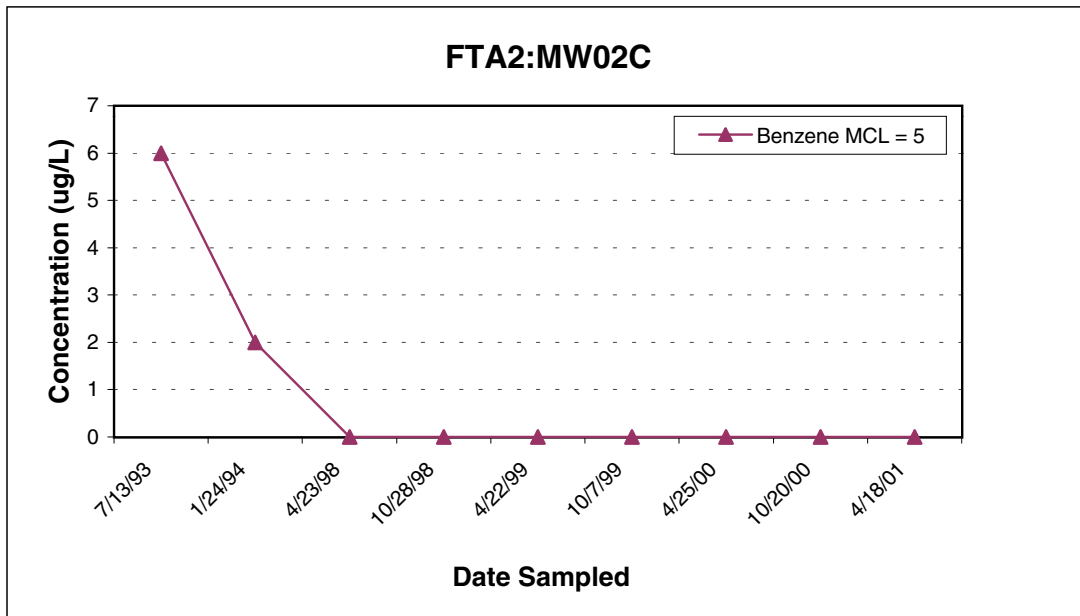
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: BS6**  
WPAFB - LTM Program



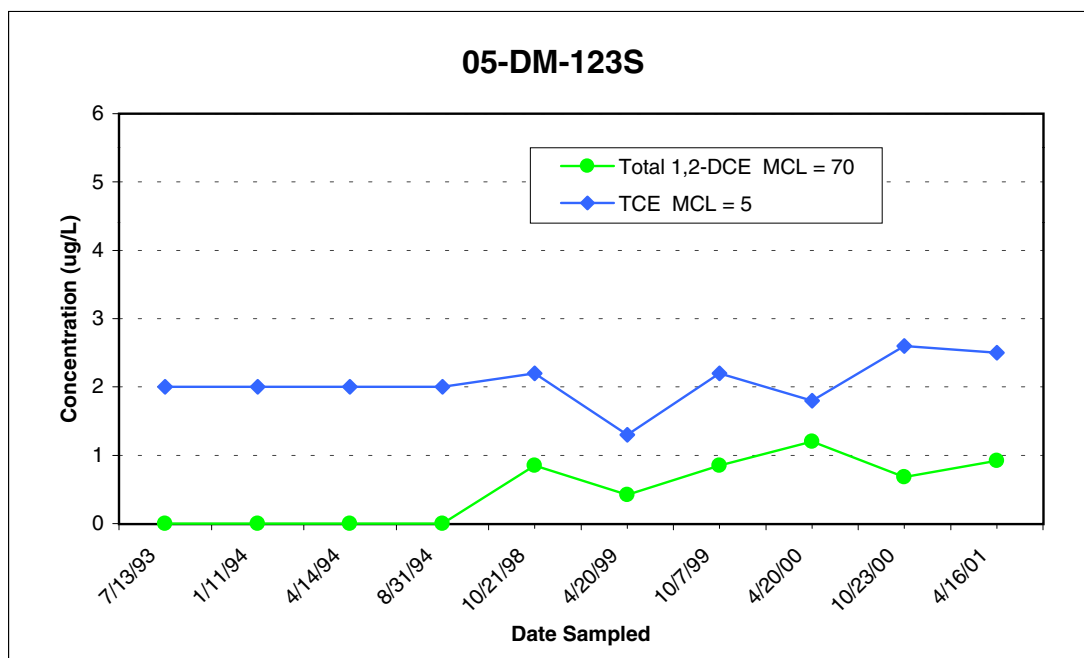
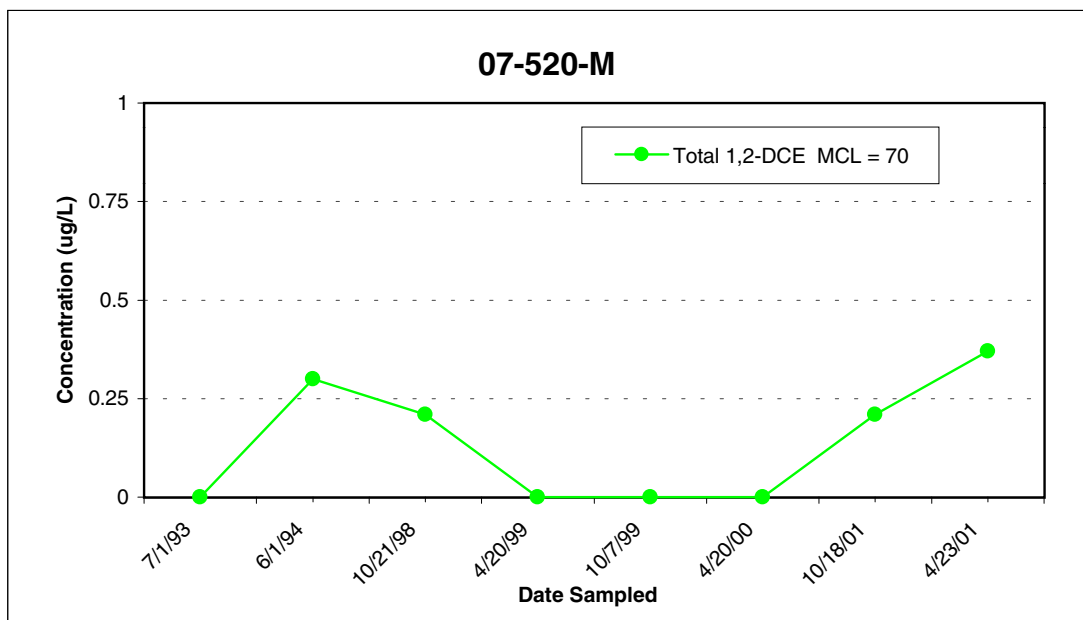
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU2**  
WPAFB - LTM Program



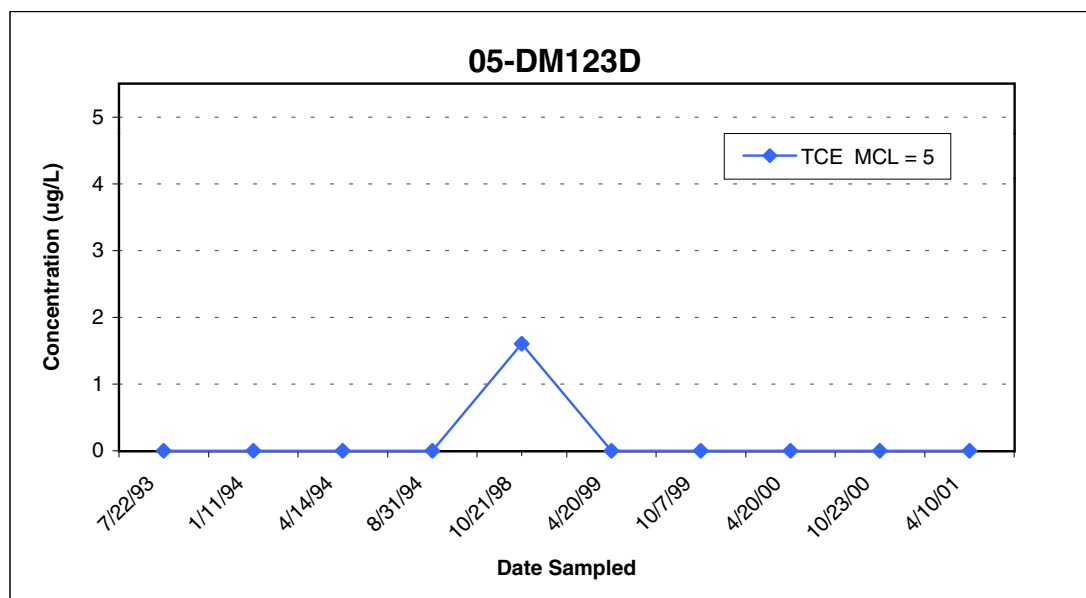
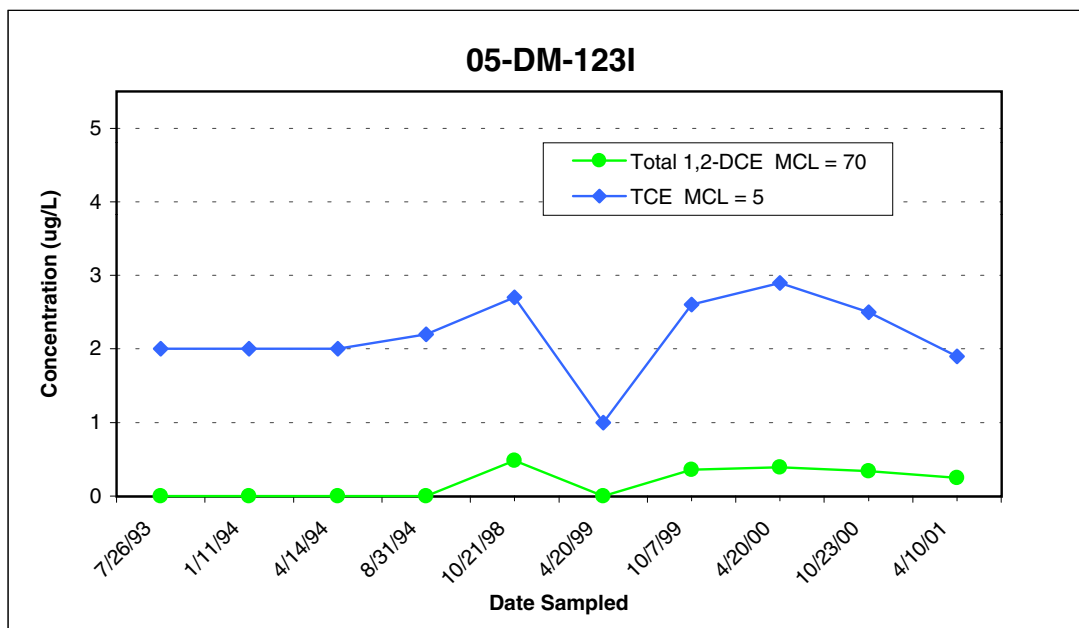
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU3**  
WPAFB - LTM Program



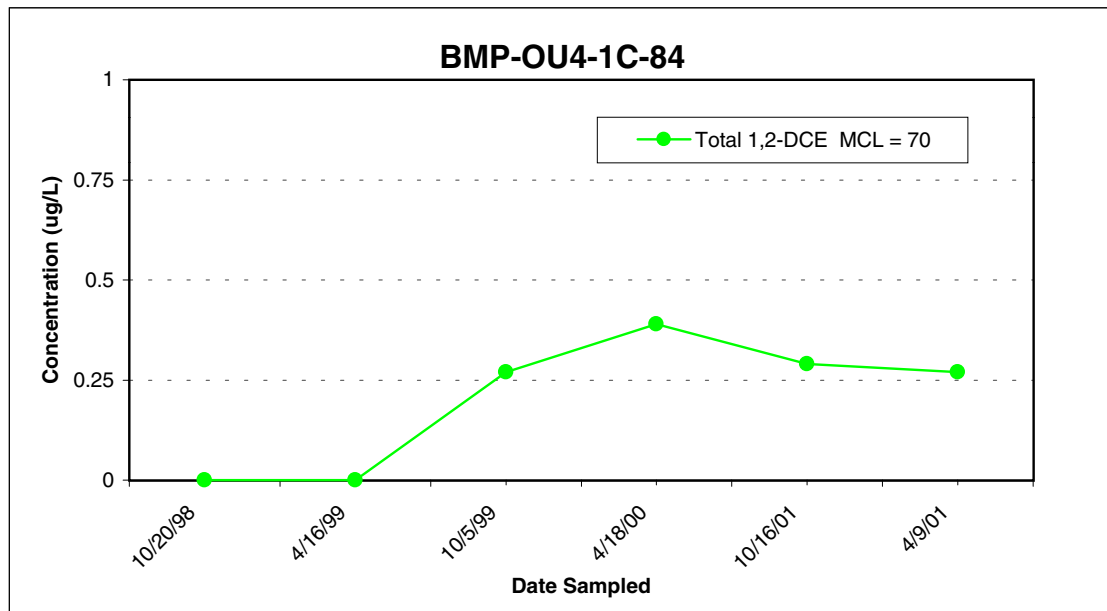
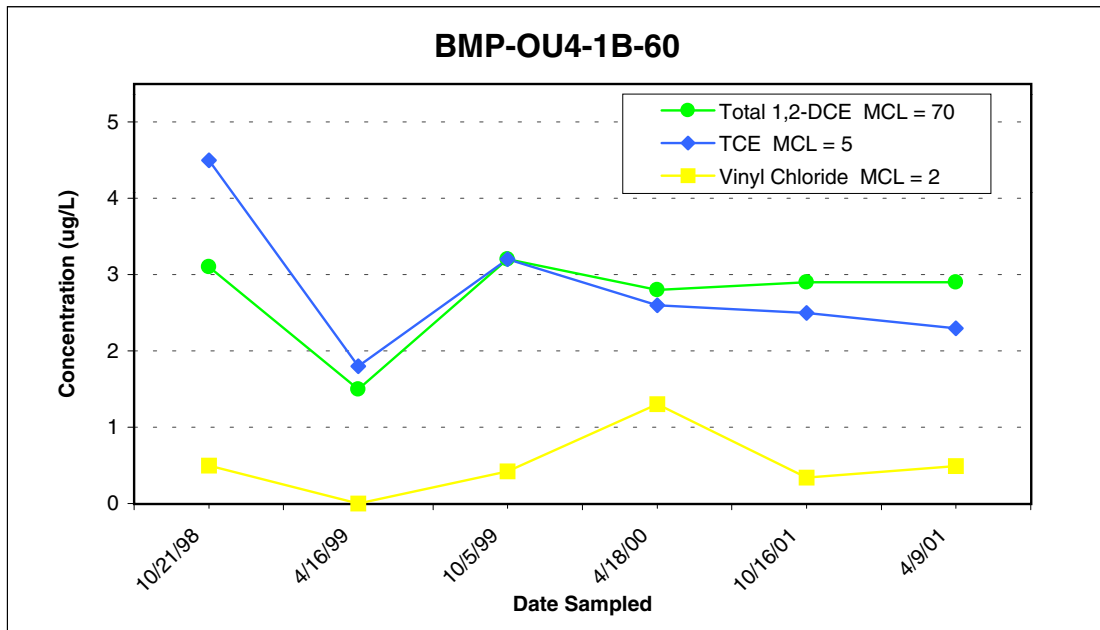
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU3**  
WPAFB - LTM Program



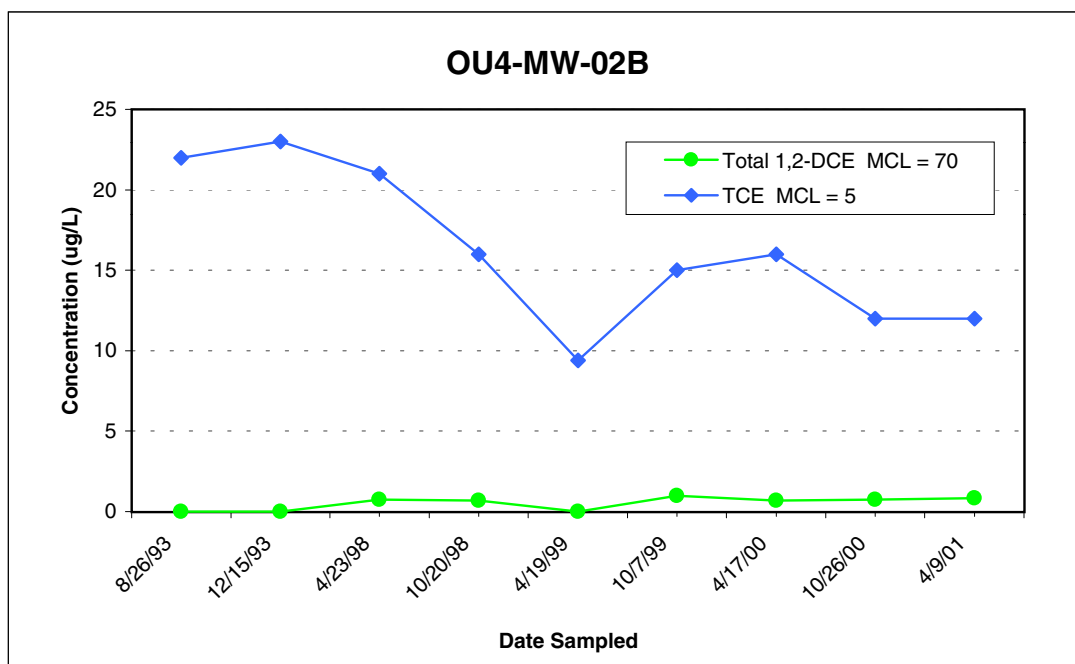
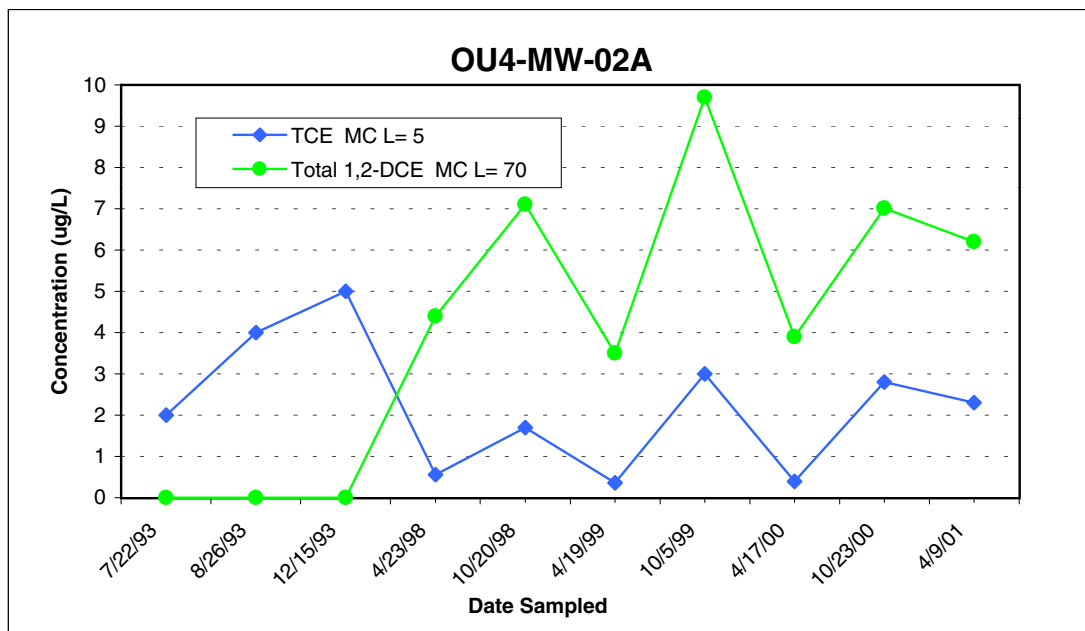
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU3**  
WPAFB - LTM Program



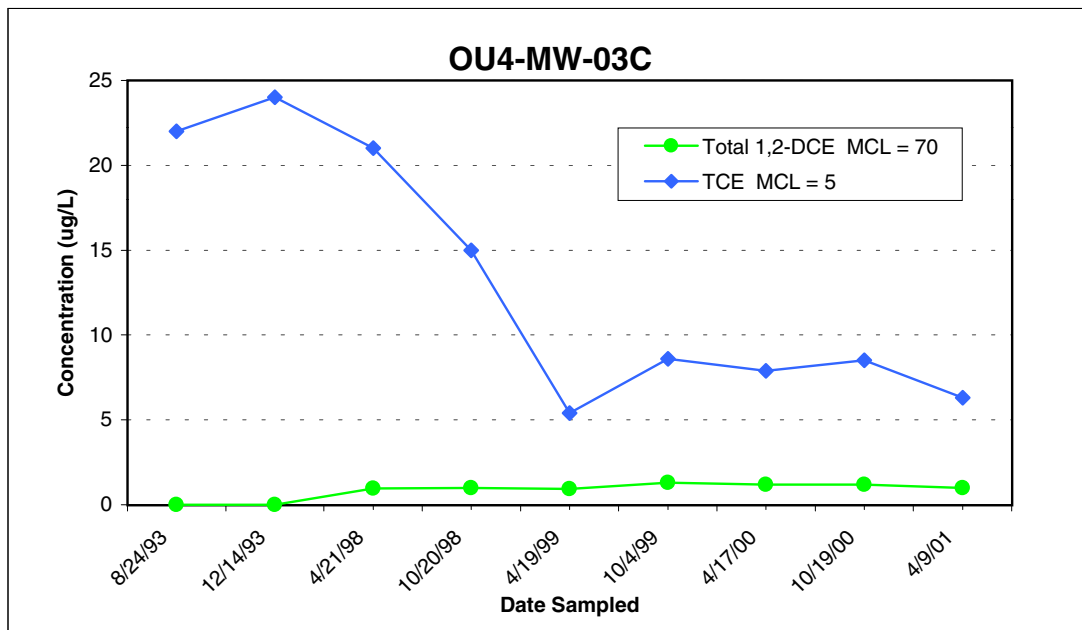
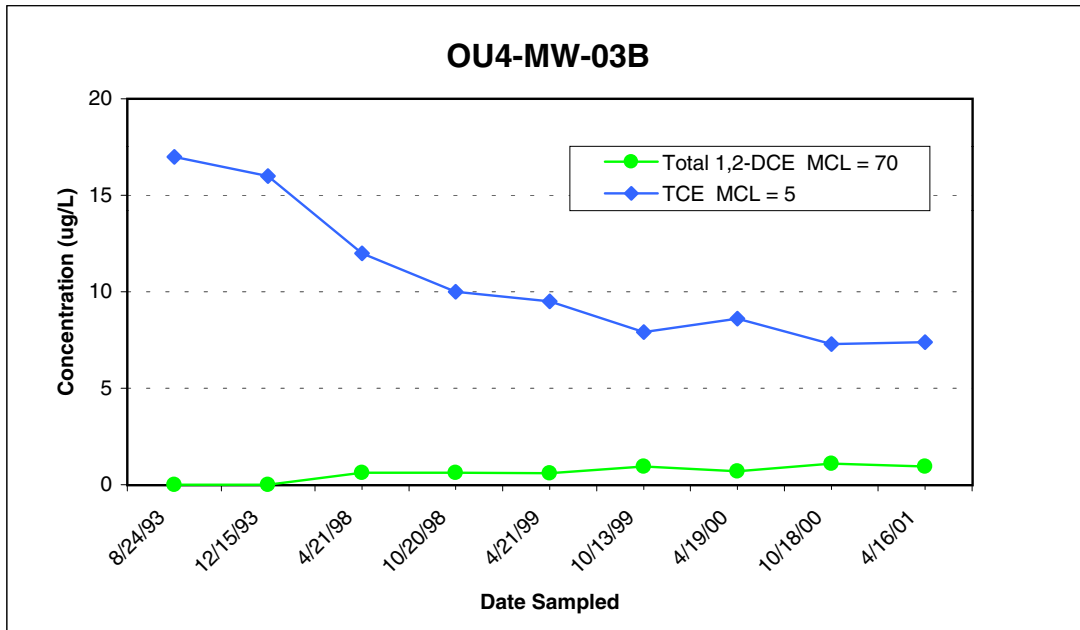
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU4**  
WPAFB - LTM Program



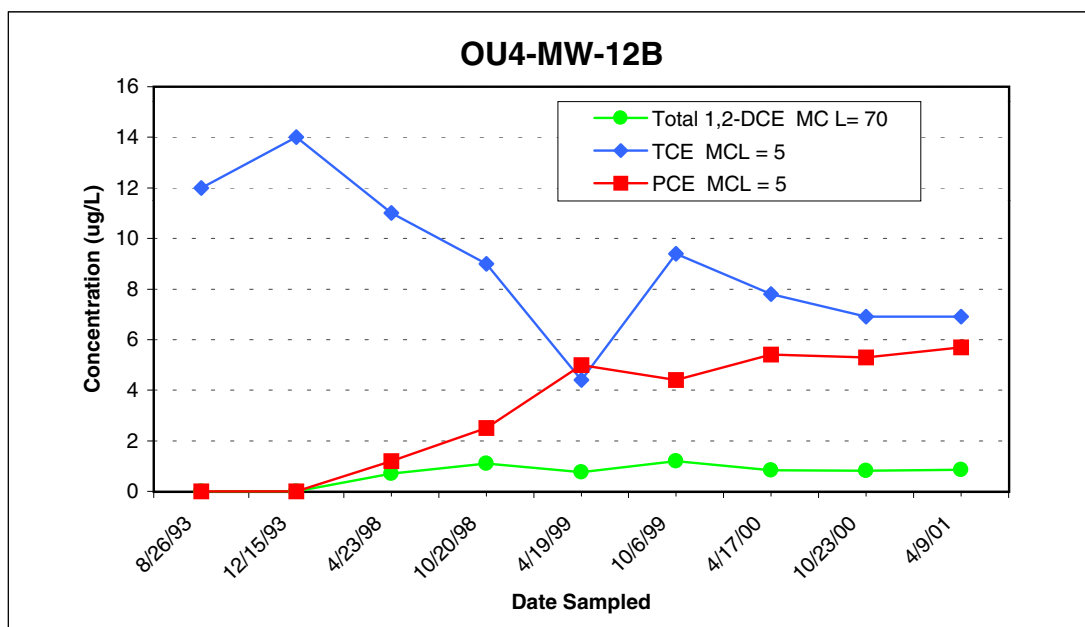
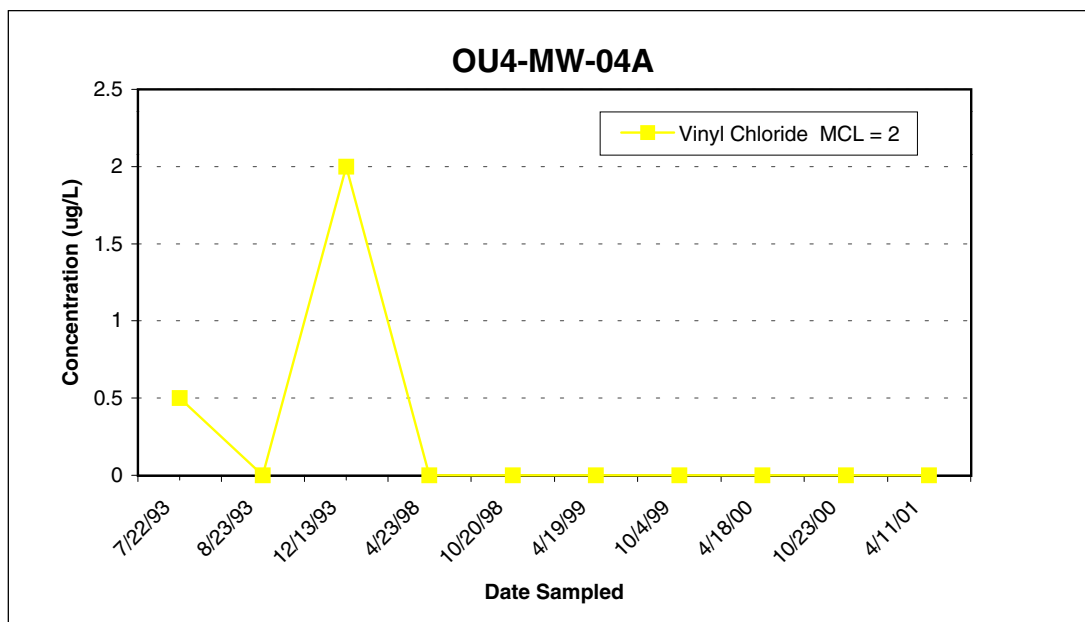
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU4**  
WPAFB - LTM Program



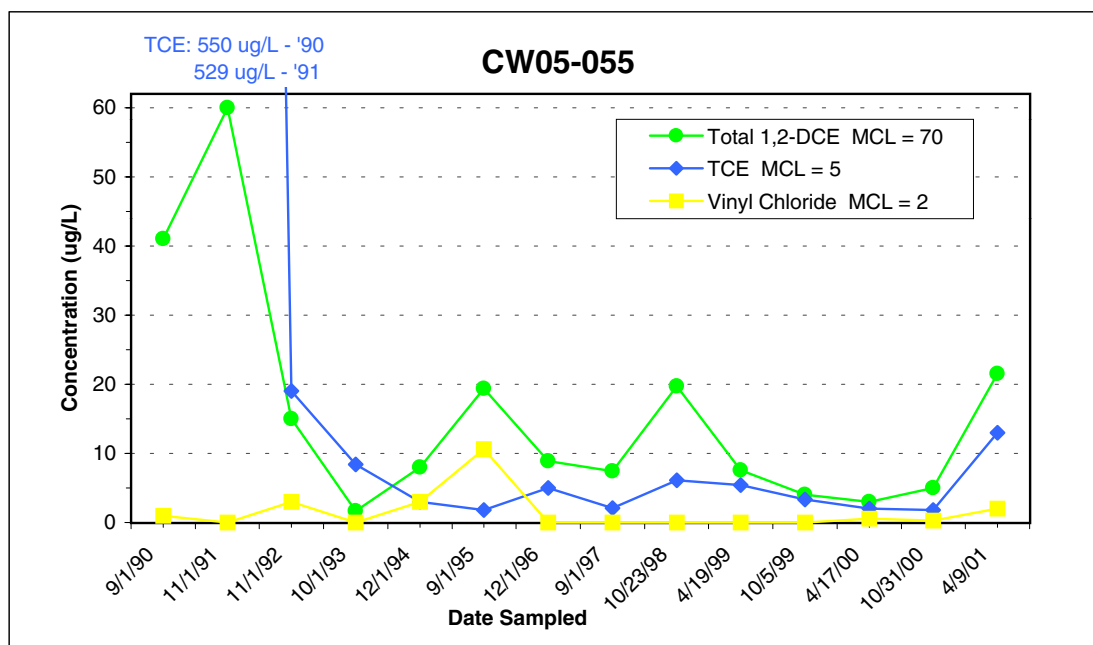
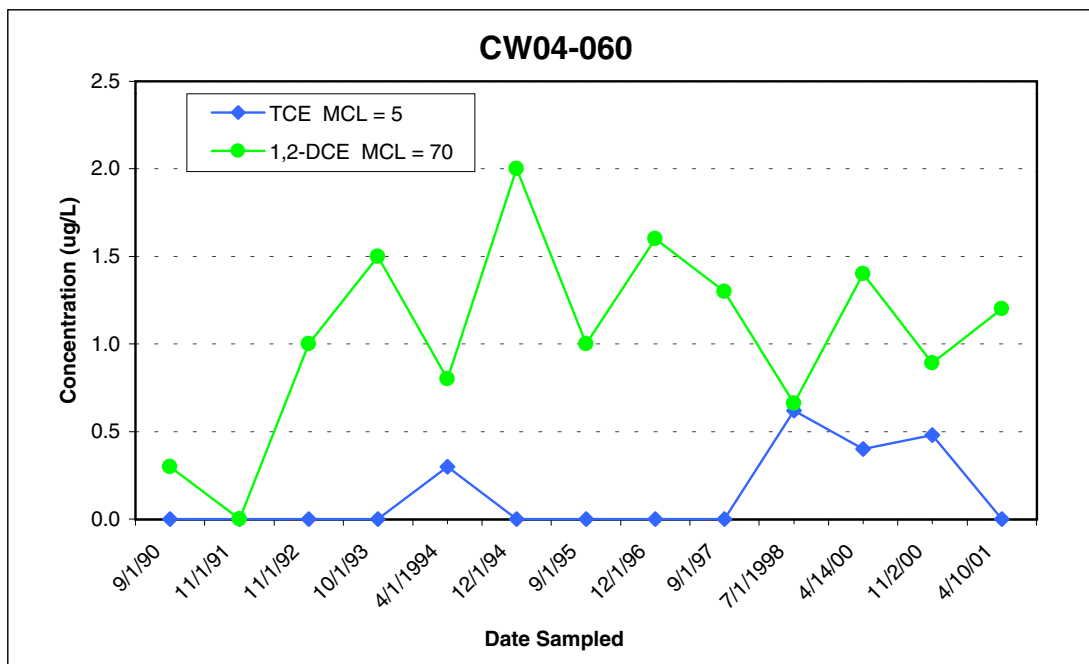
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU4**  
WPAFB - LTM Program



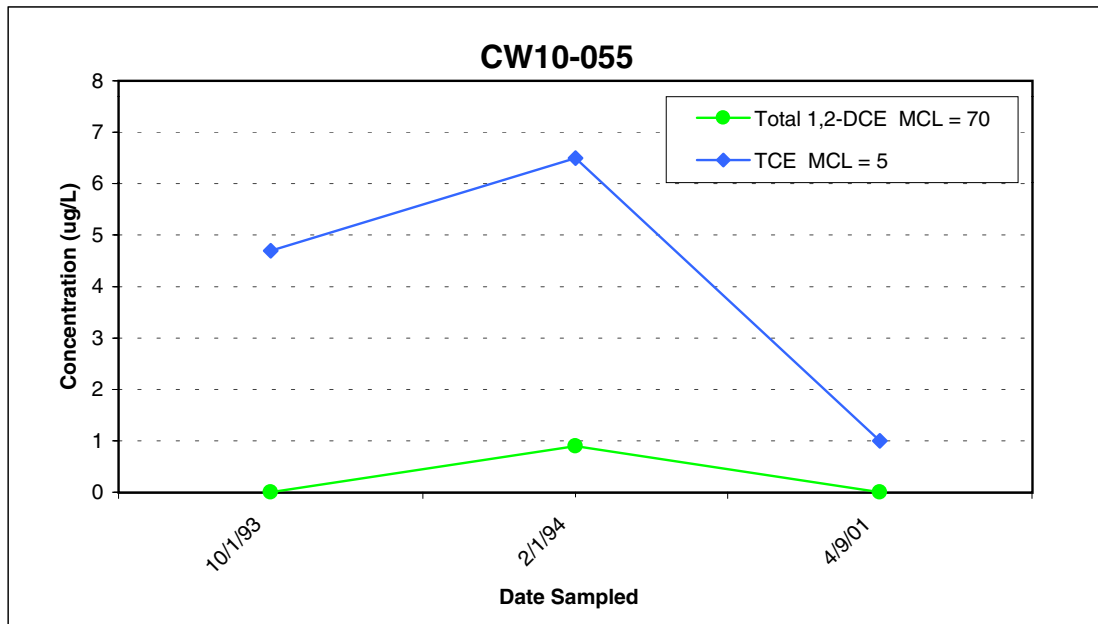
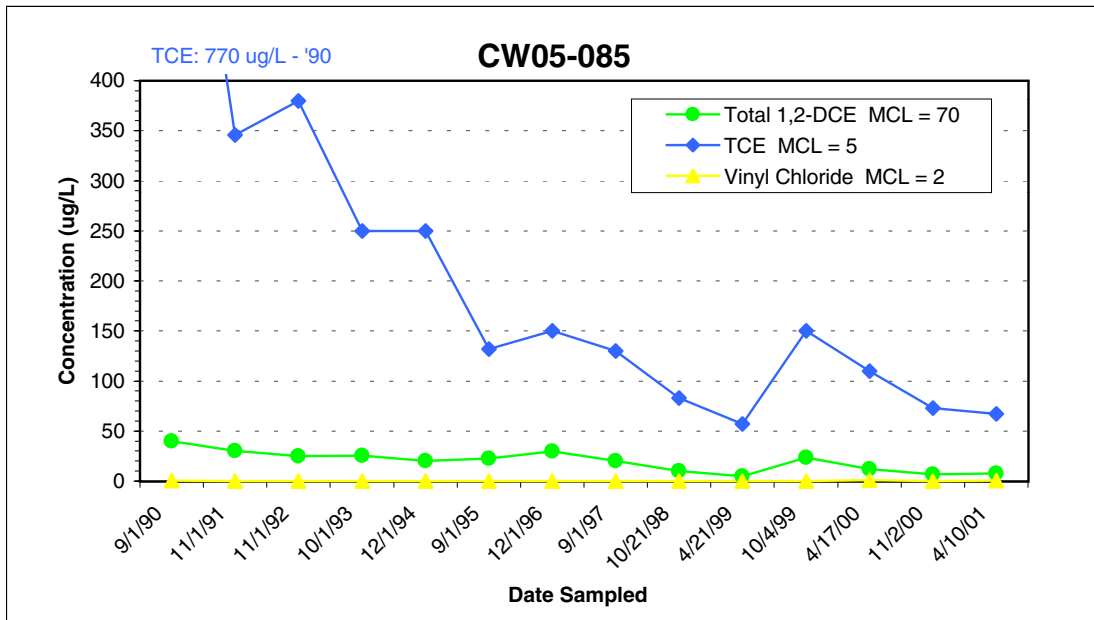
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU4**  
WPAFB - LTM Program



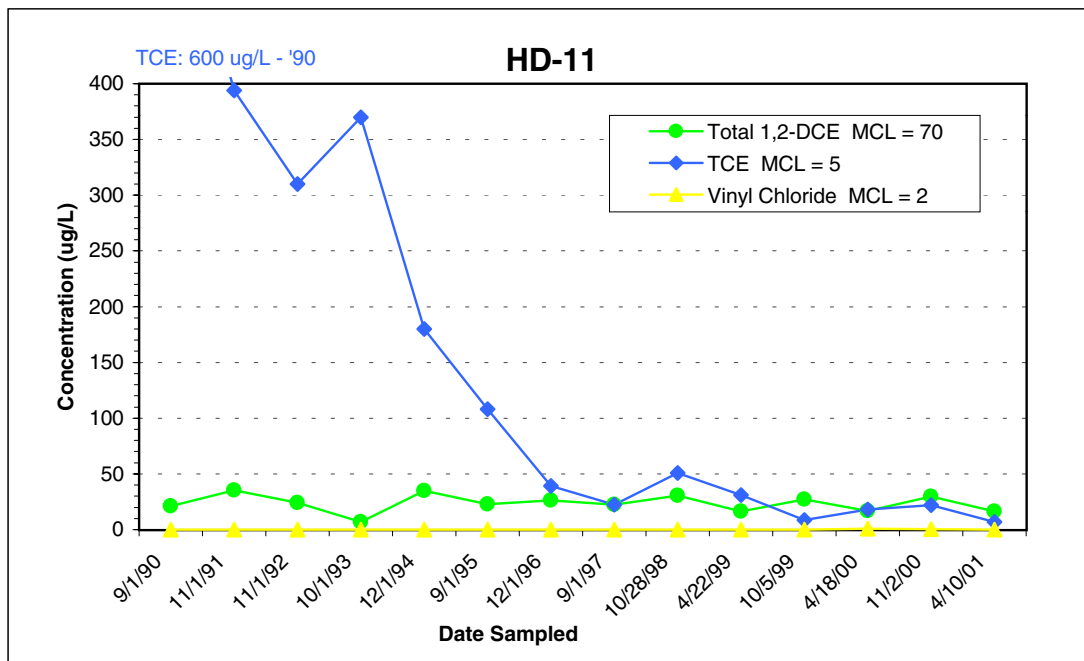
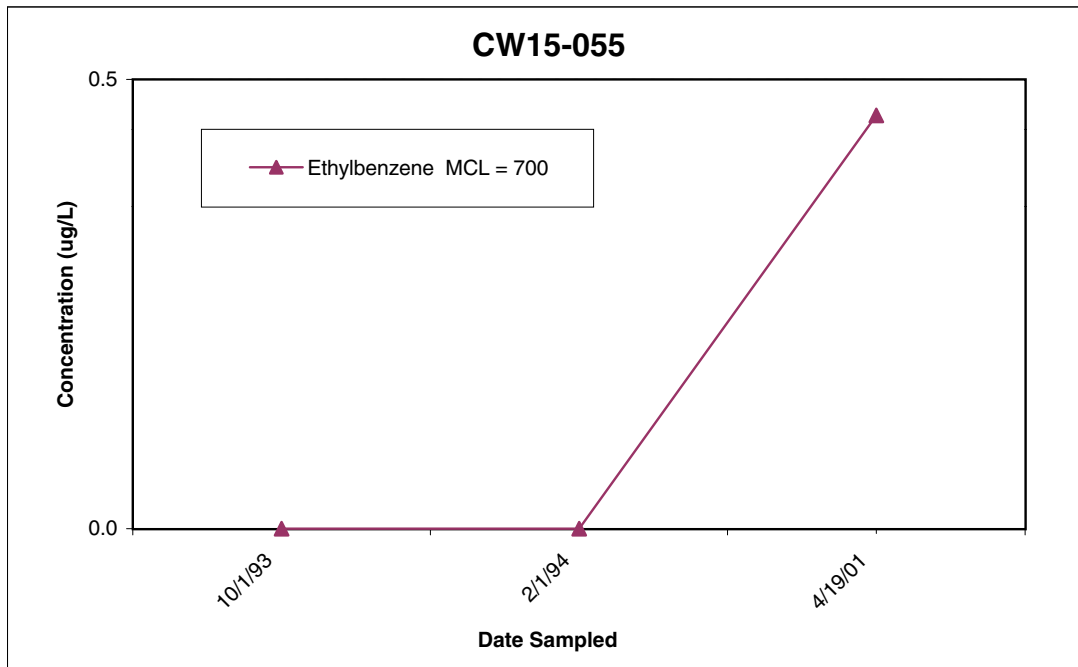
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU5 (FAA-A)**  
WPAFB - LTM Program



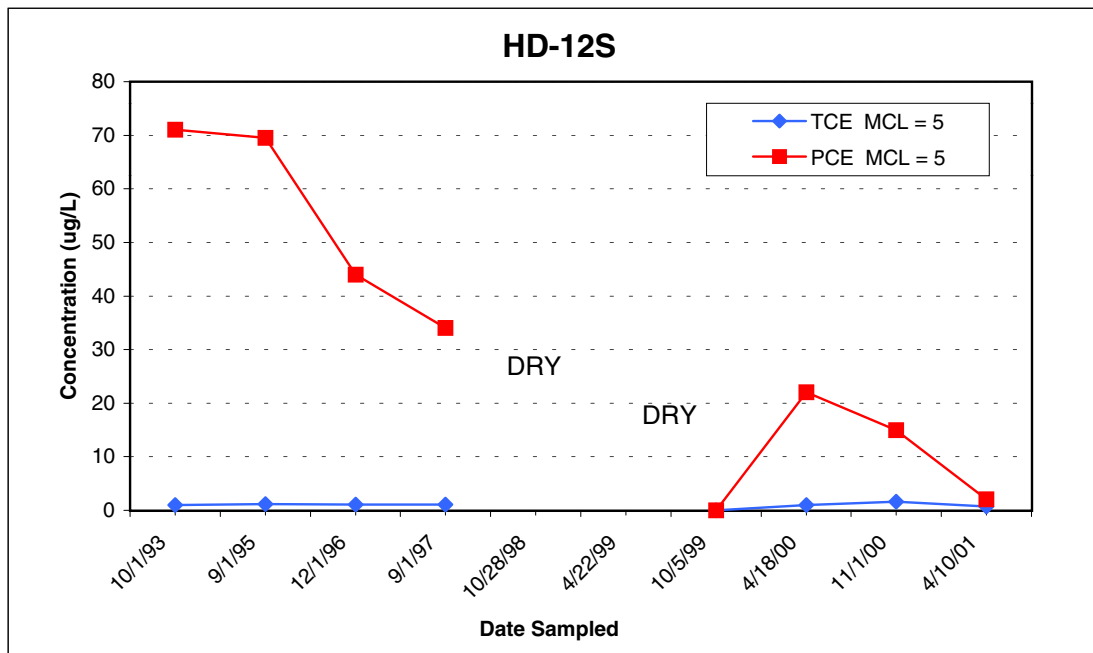
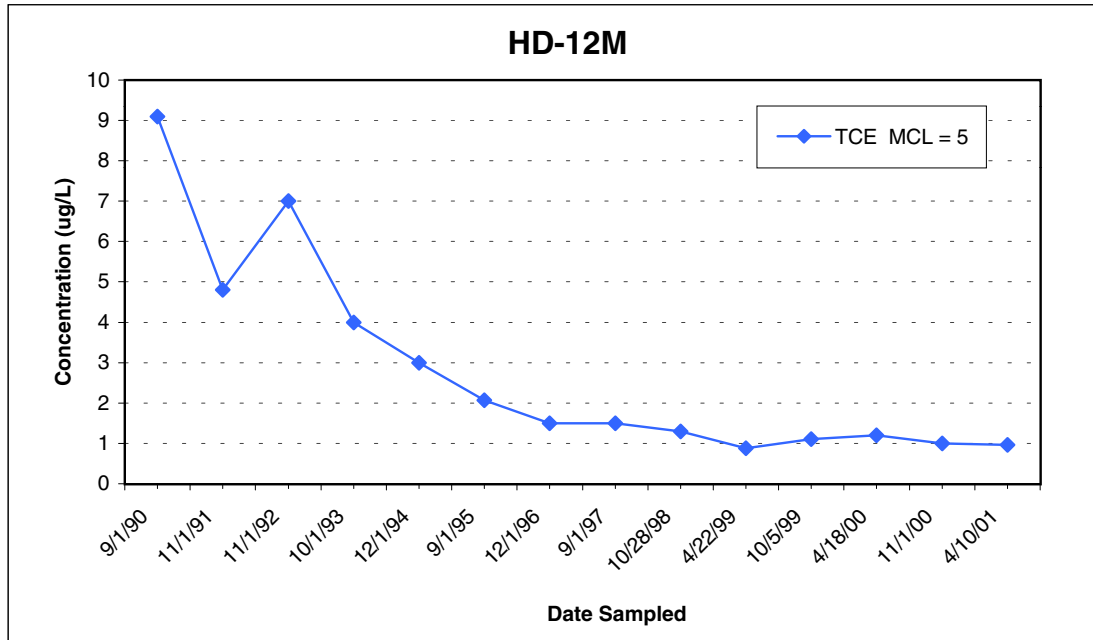
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU5**  
WPAFB - LTM Program



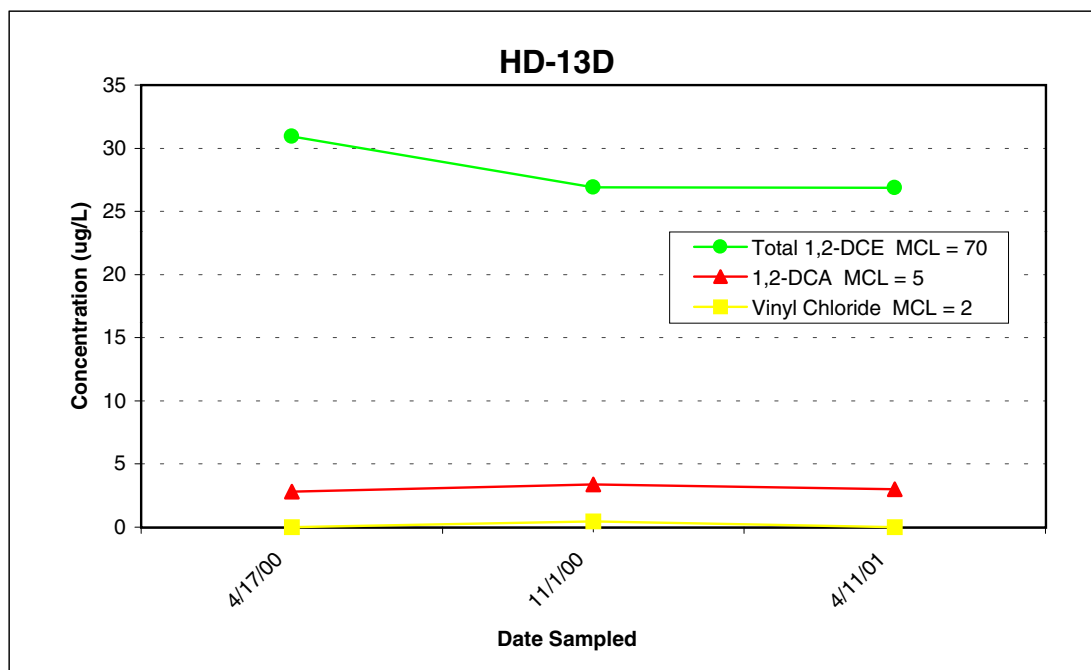
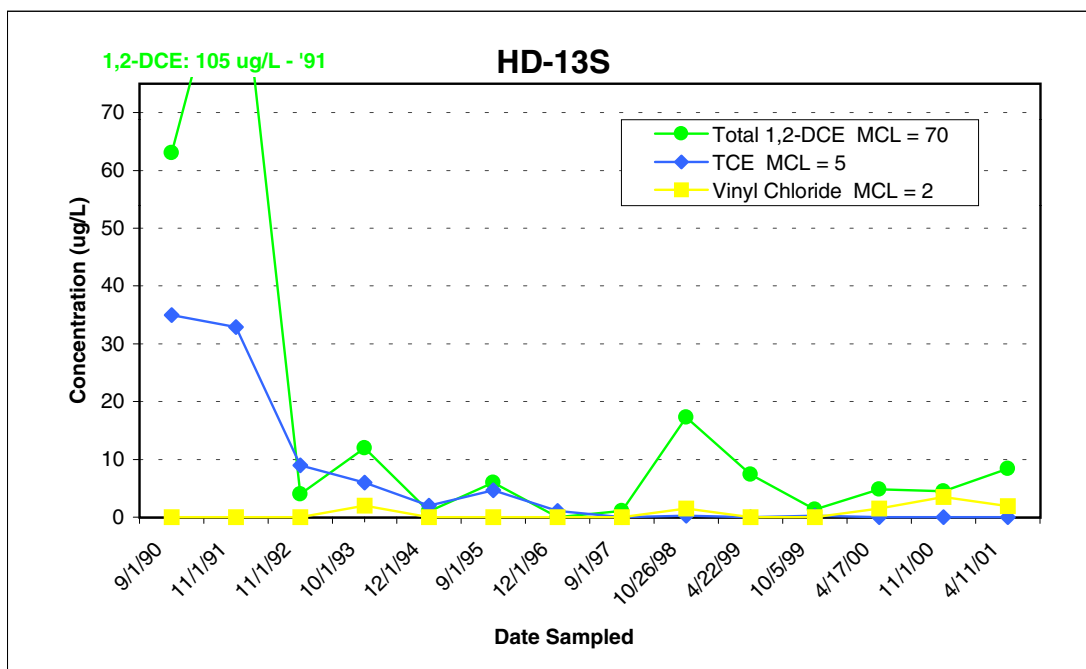
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU5 (FAA-A)**  
WPAFB - LTM Program



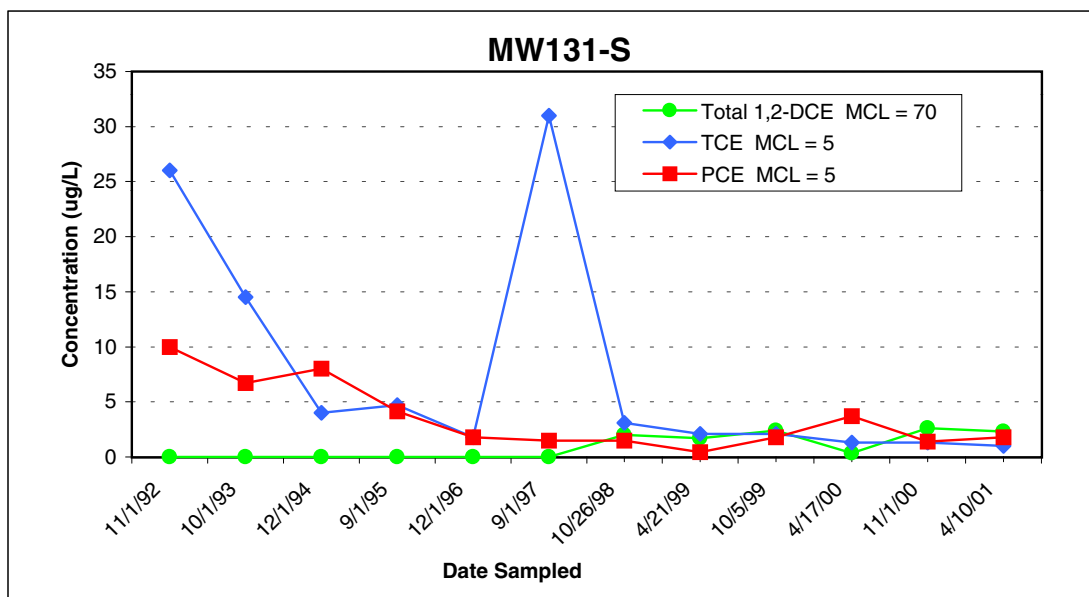
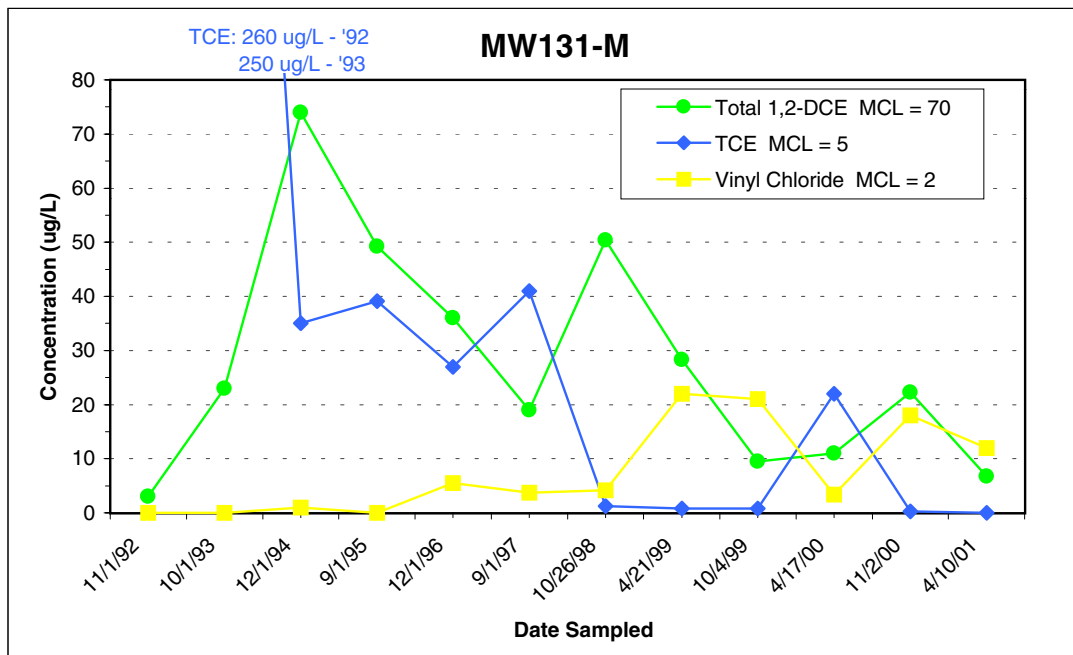
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU5 (FAA-A)**  
**WPAFB - LTM Program**



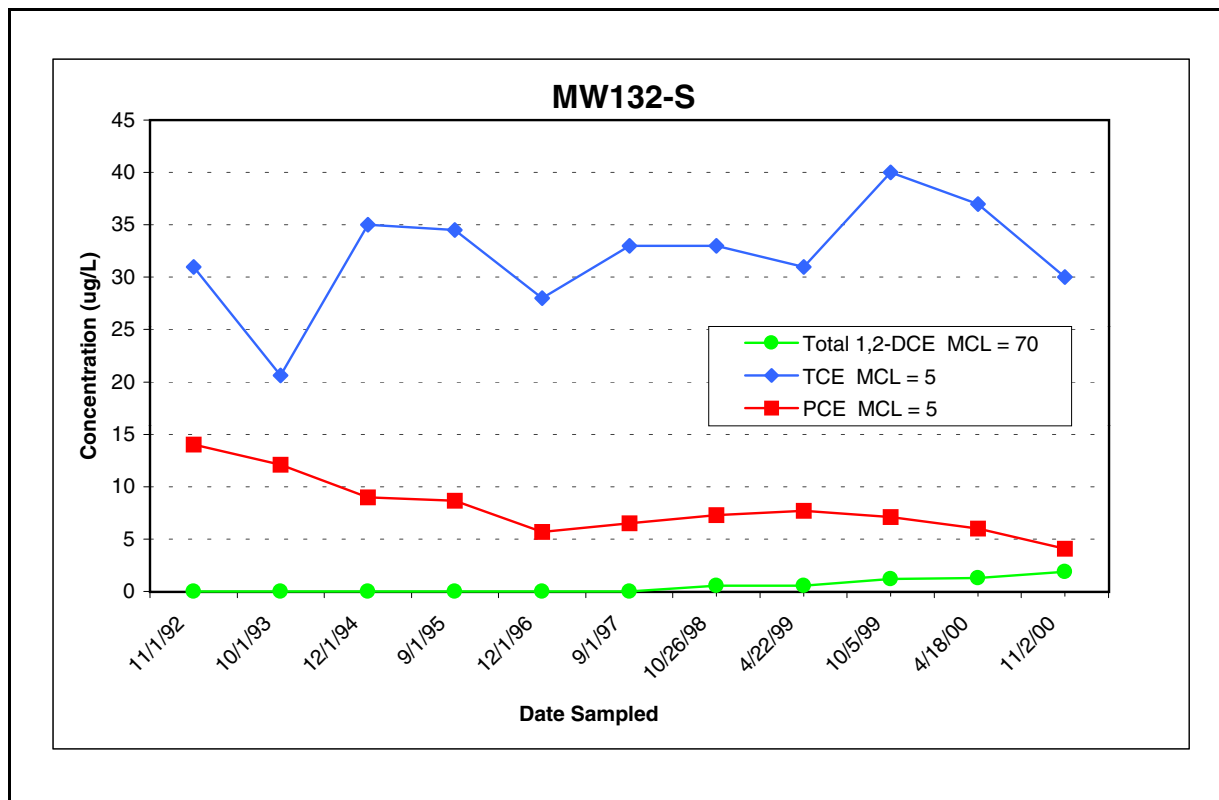
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU5 (FAA-A)**  
**WPAFB - LTM Program**



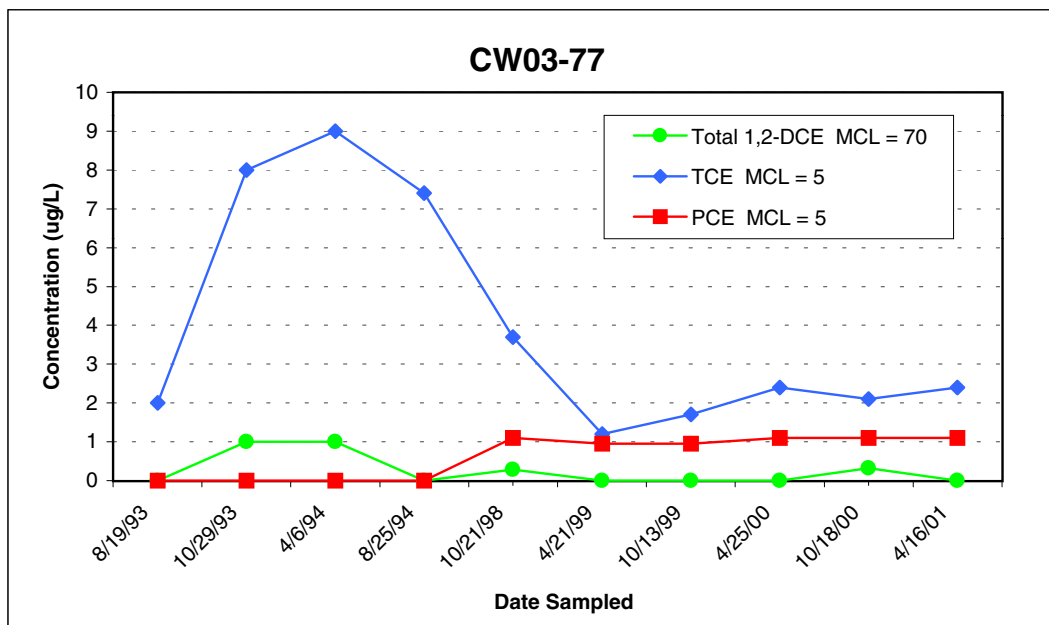
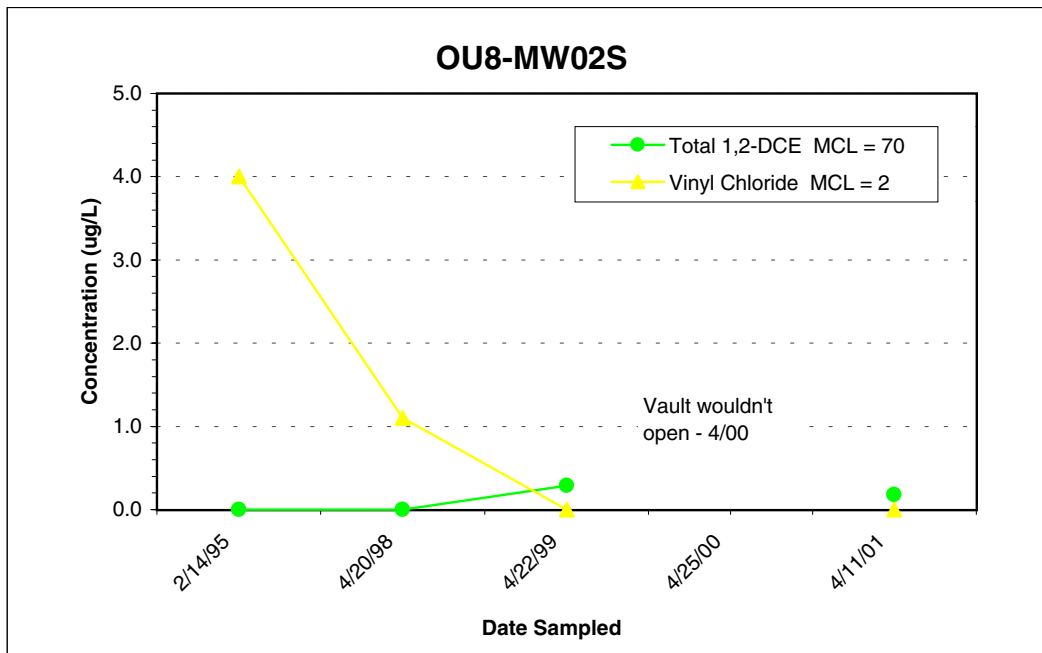
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU5 (FAA-A)**  
WPAFB - LTM Program



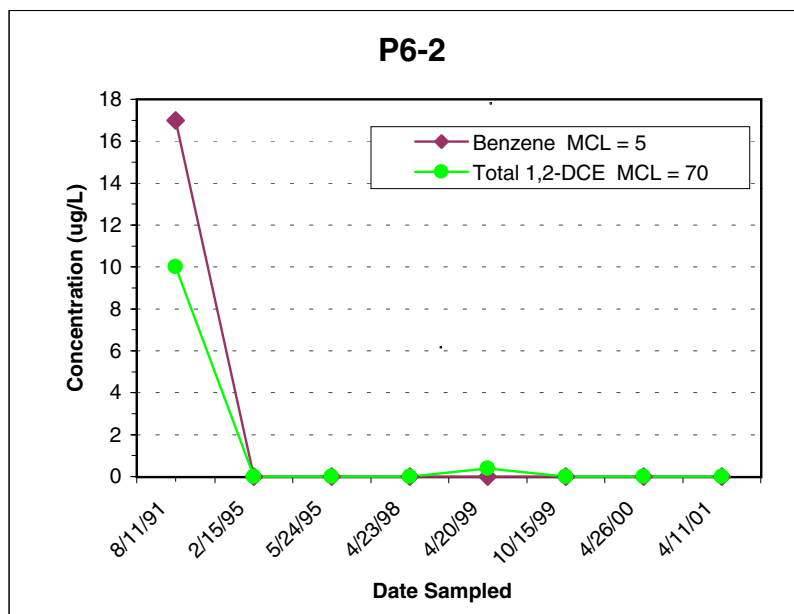
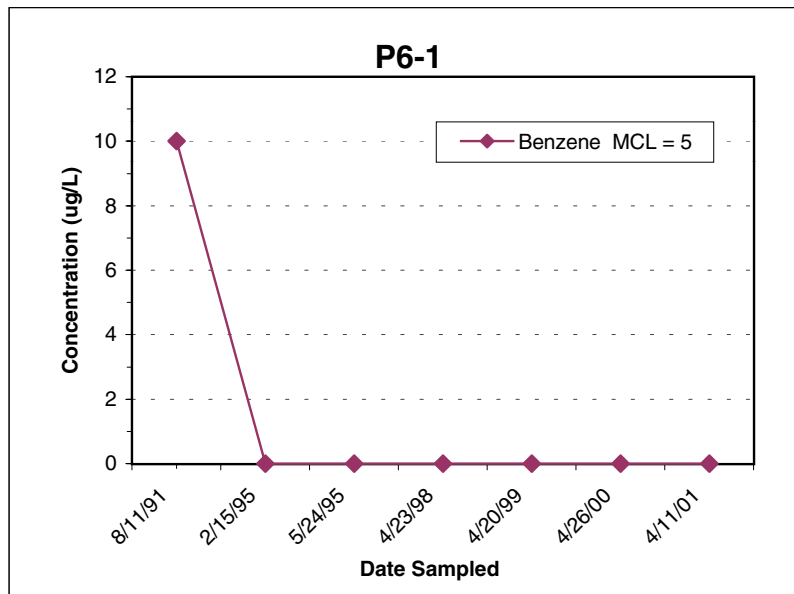
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU5 (FAA-A)**  
WPAFB - LTM Program



**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU8**  
WPAFB - LTM Program

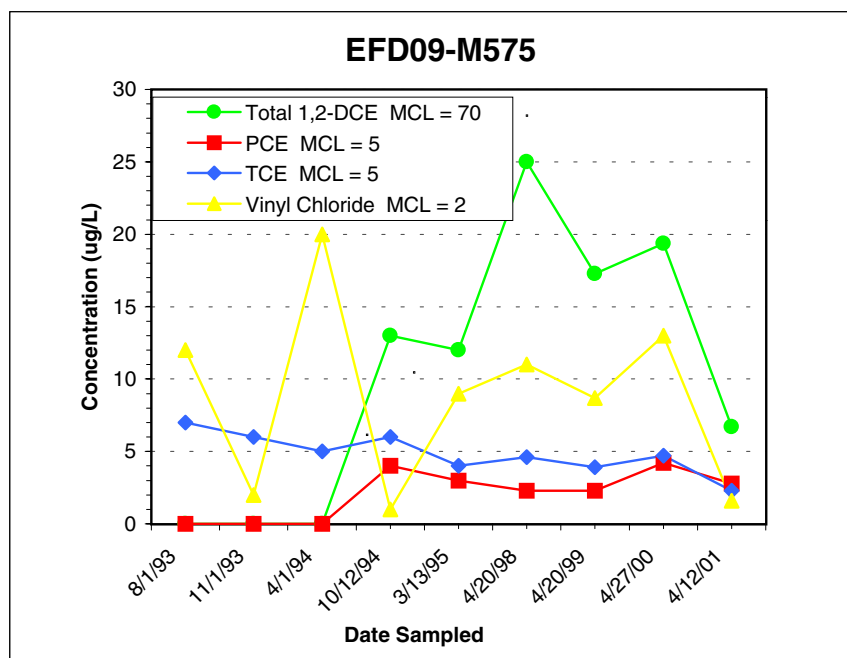
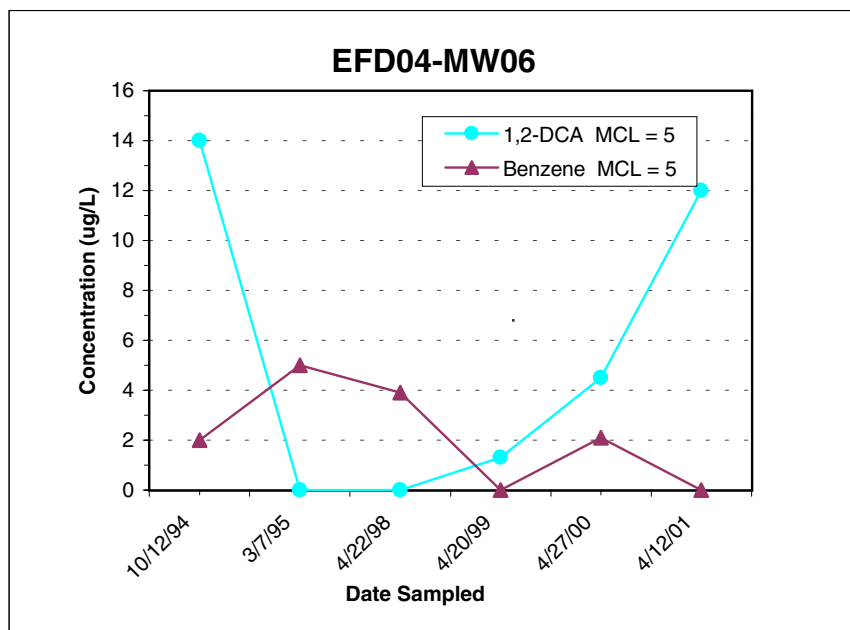


**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU8**  
WPAFB - LTM Program



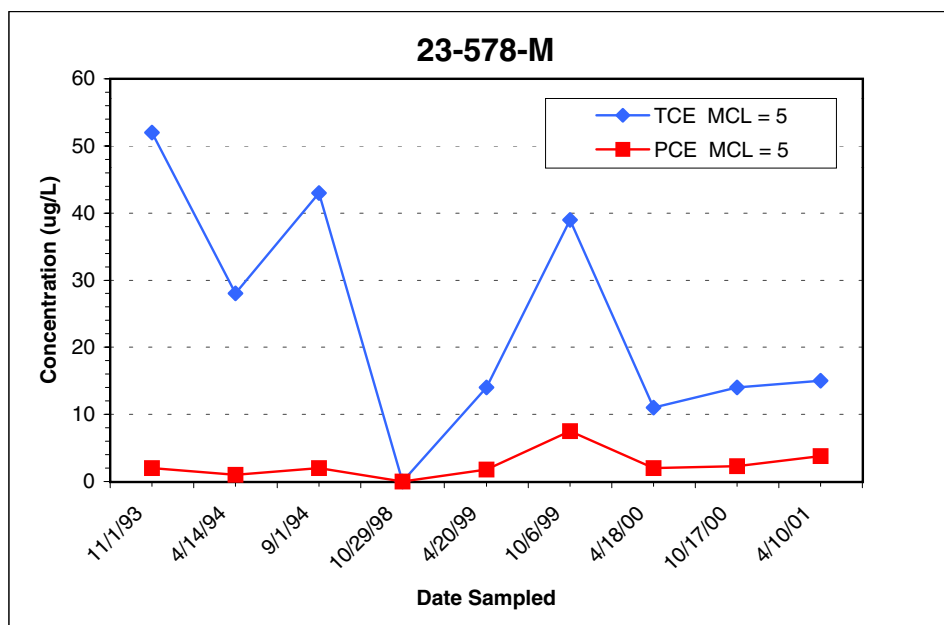
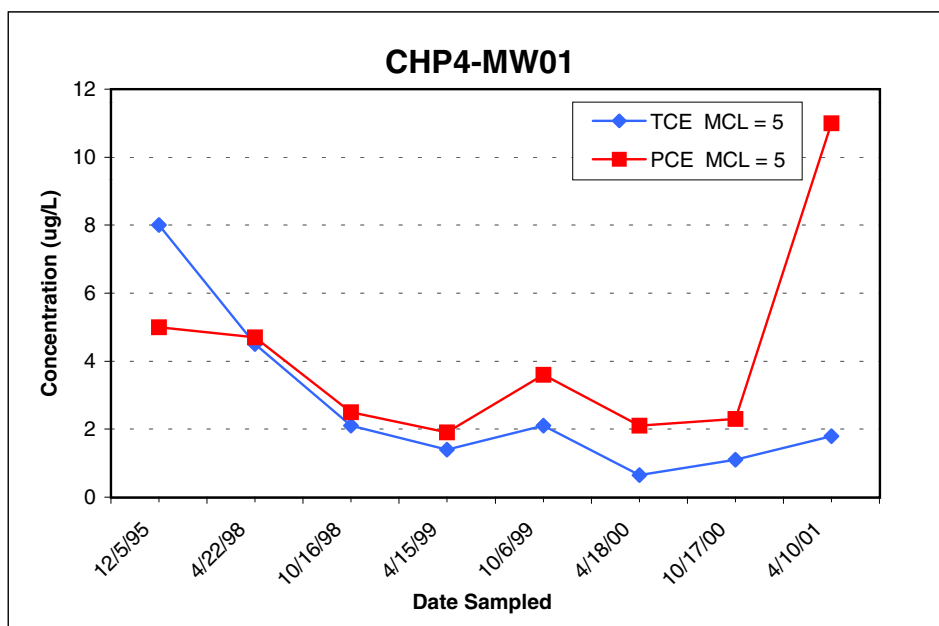
**FIGURE 6-44**

**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU9**  
WPAFB - LTM Program

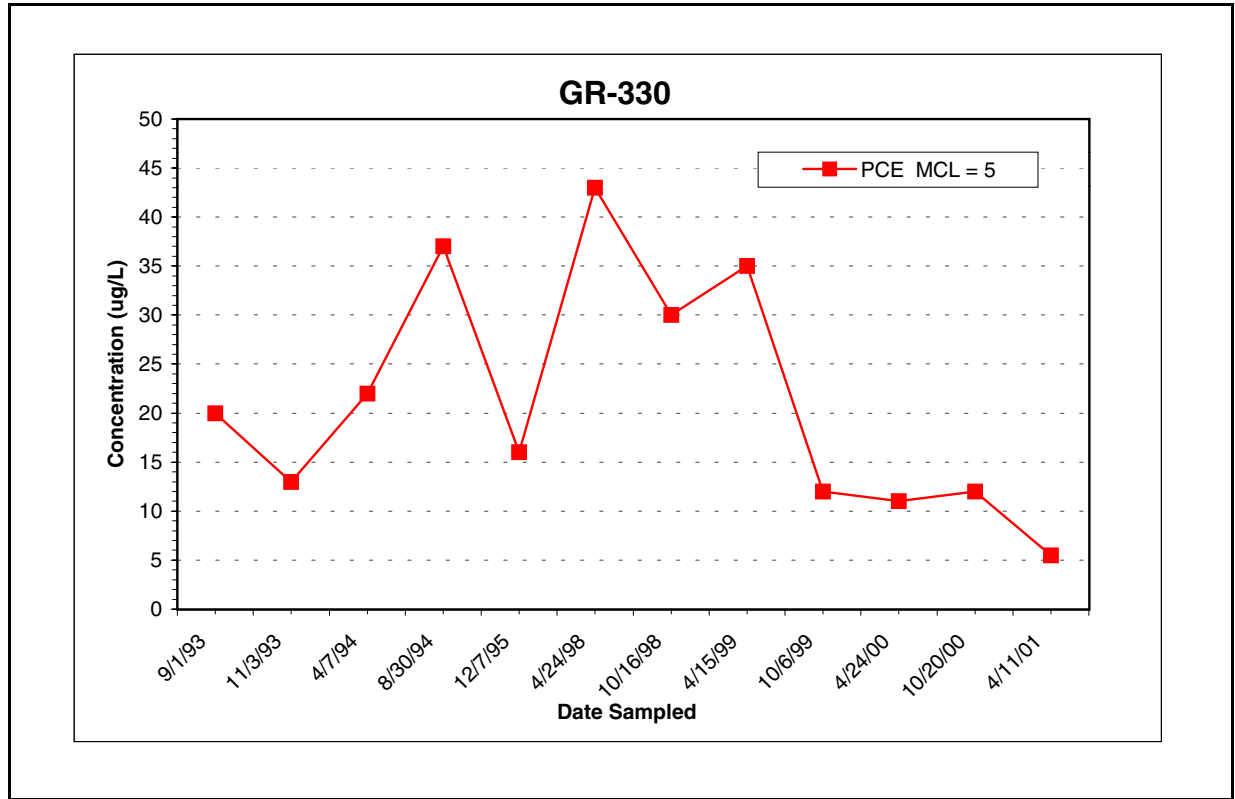


**FIGURE 6-45**

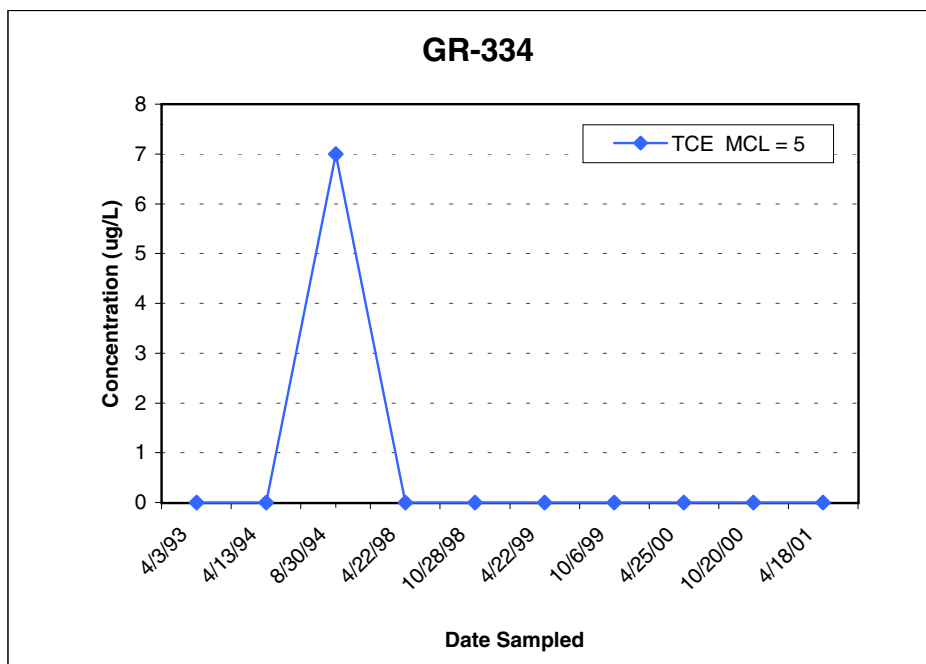
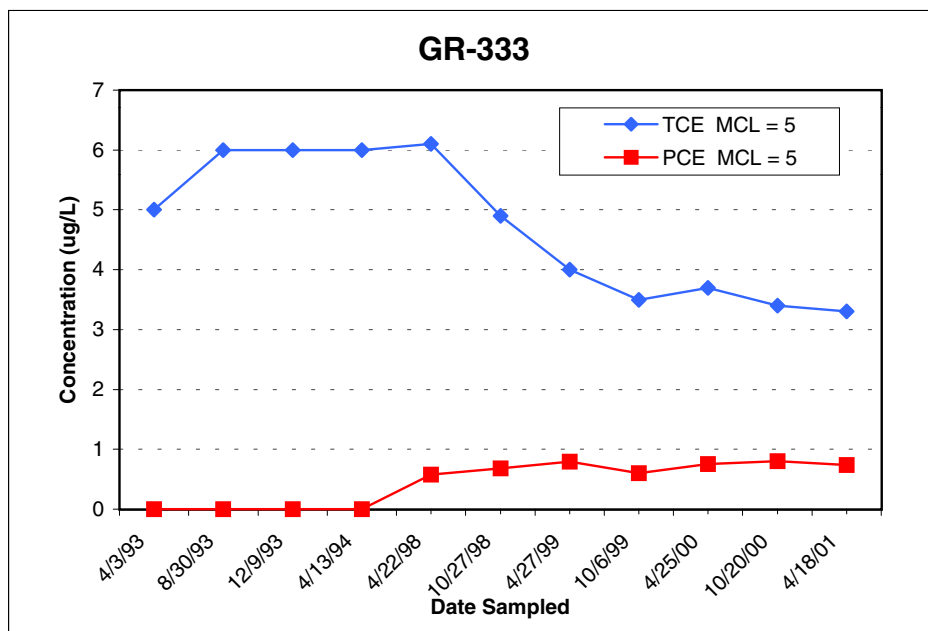
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU10 (CHP4)**  
WPAFB - LTM Program



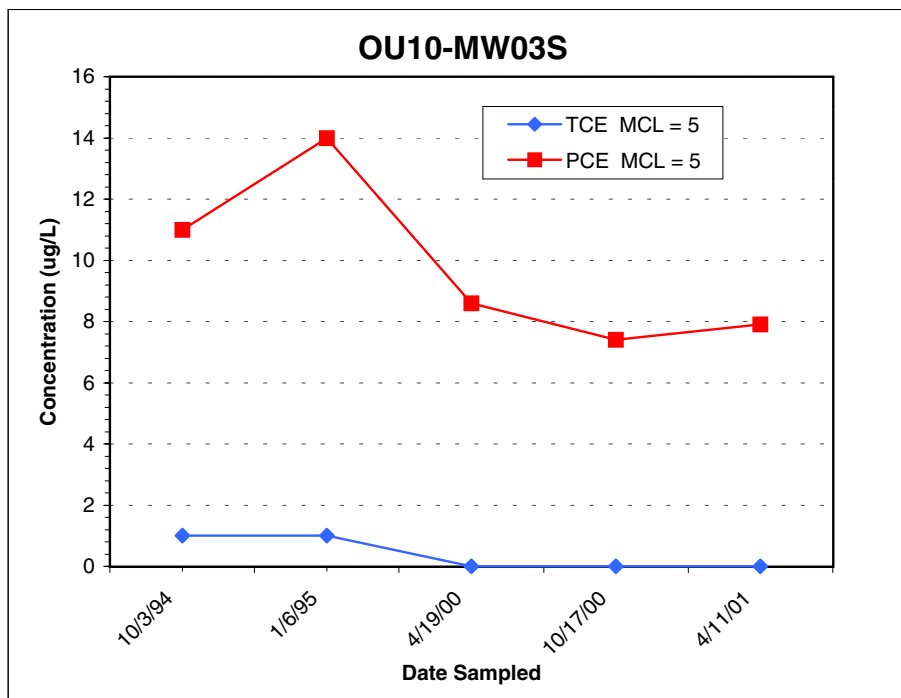
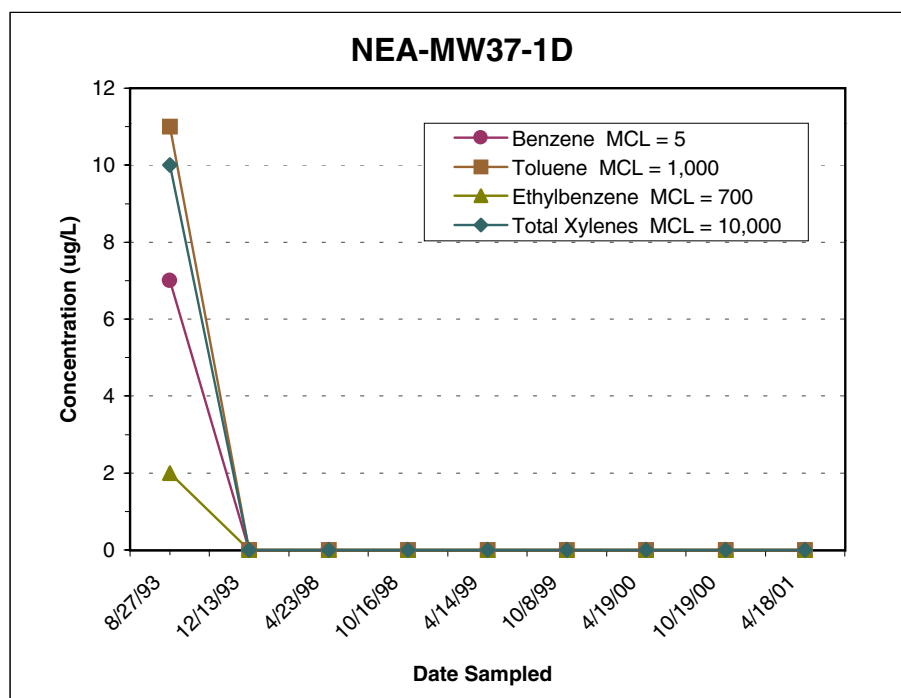
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU10 (CHP4)**  
**WPAFB - LTM Program**



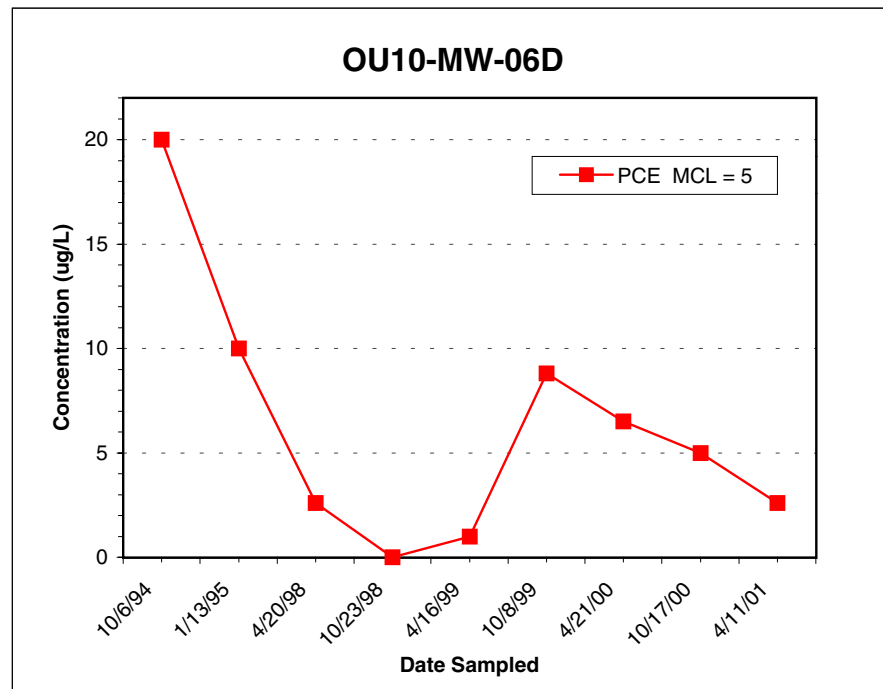
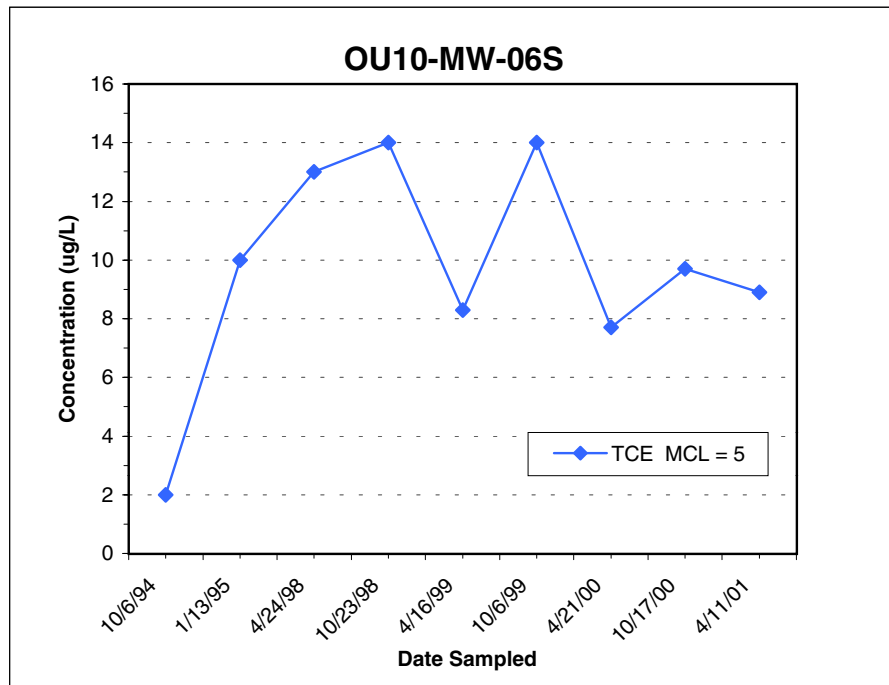
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU10**  
WPAFB - LTM Program



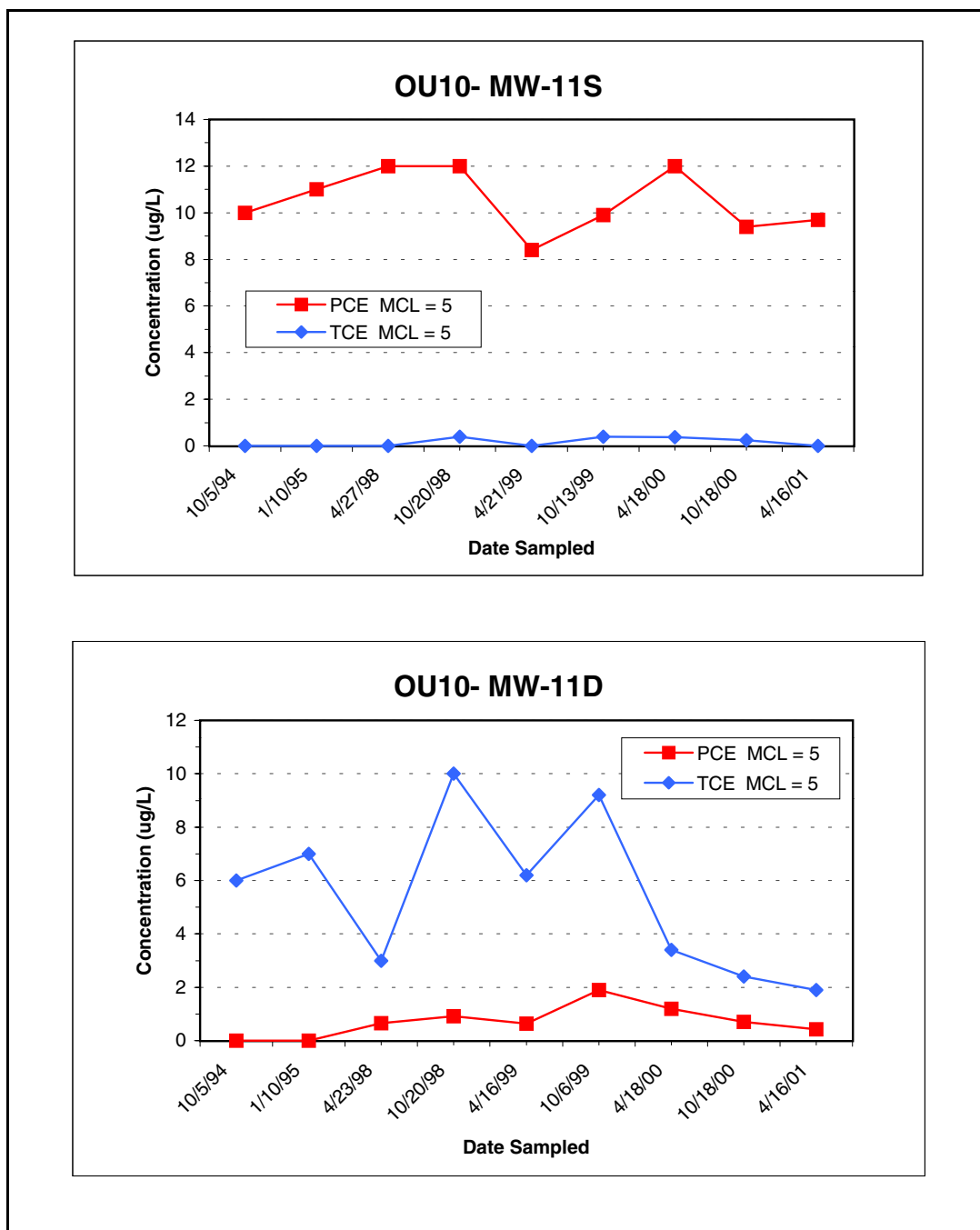
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU10**  
WPAFB - LTM Program



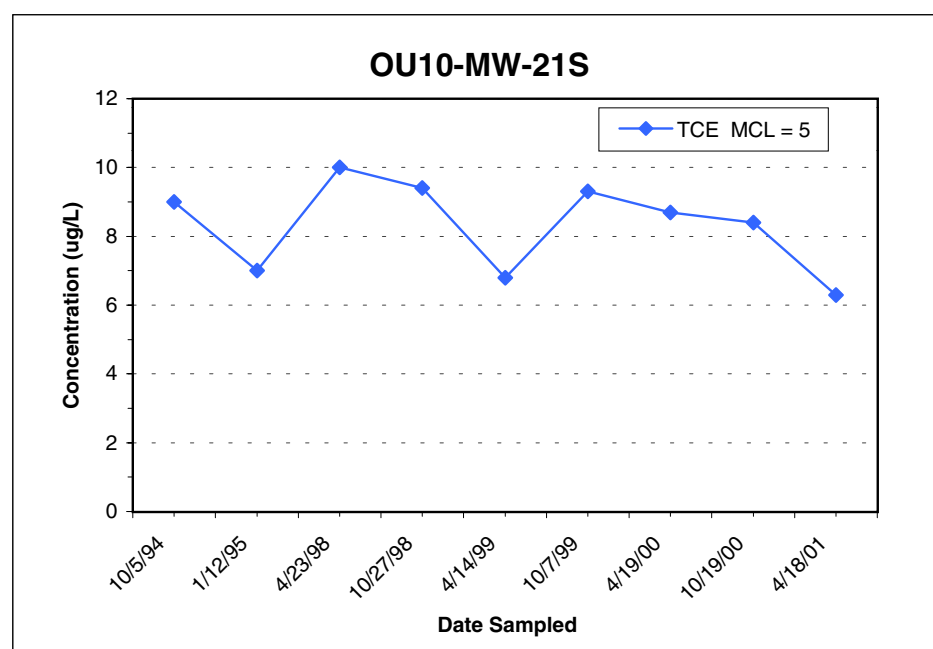
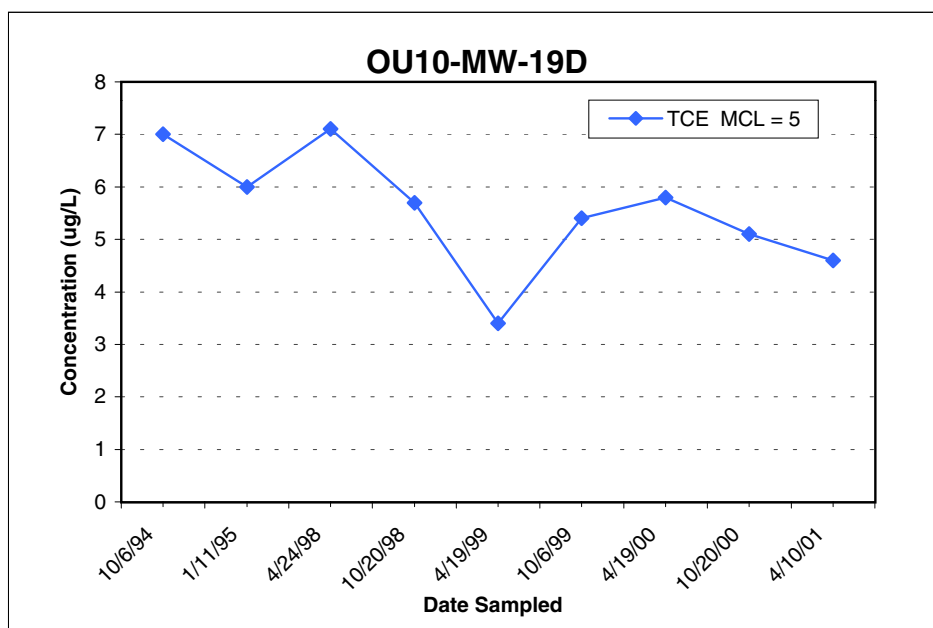
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU10**  
WPAFB - LTM Program



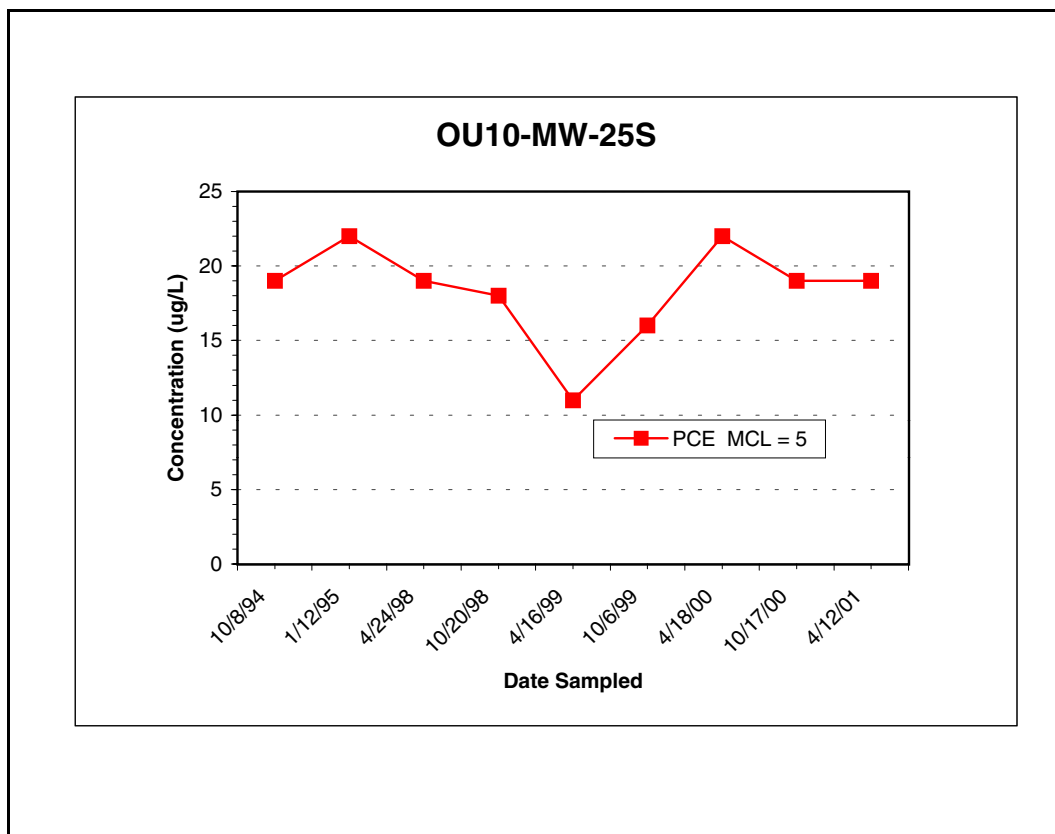
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU10**  
WPAFB - LTM Program



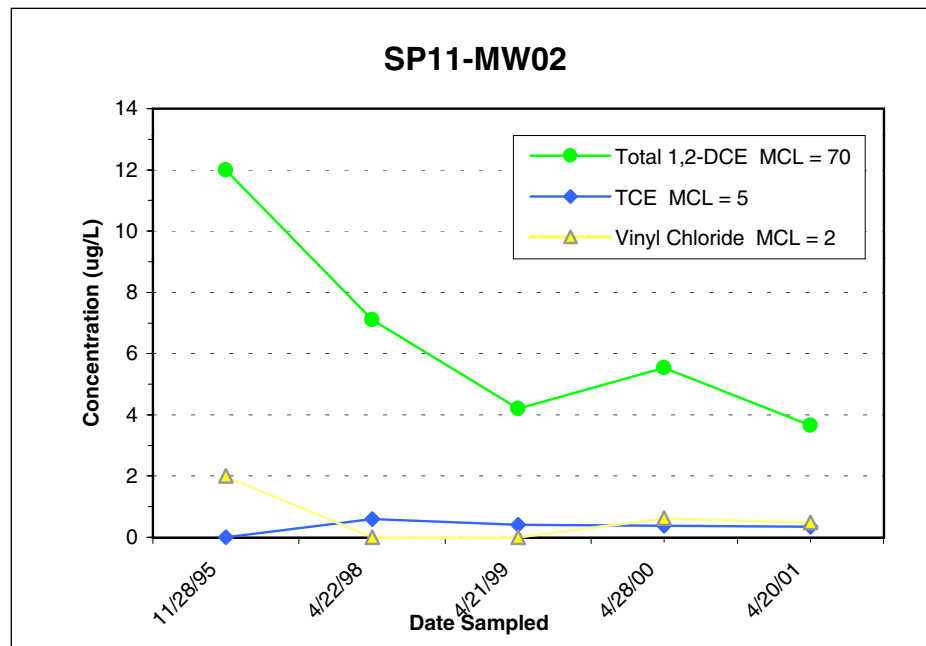
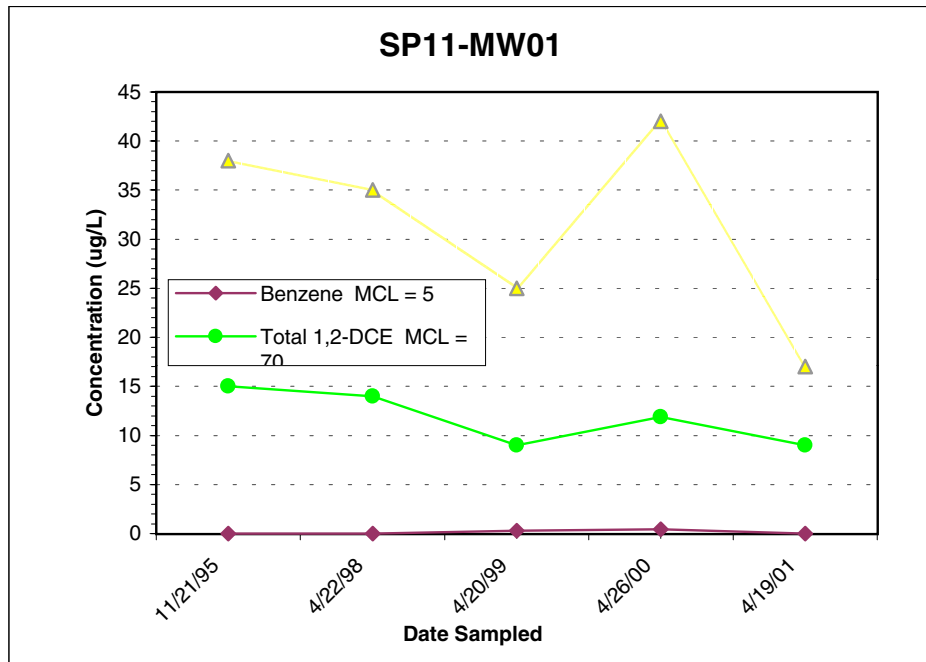
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU10**  
WPAFB - LTM Program



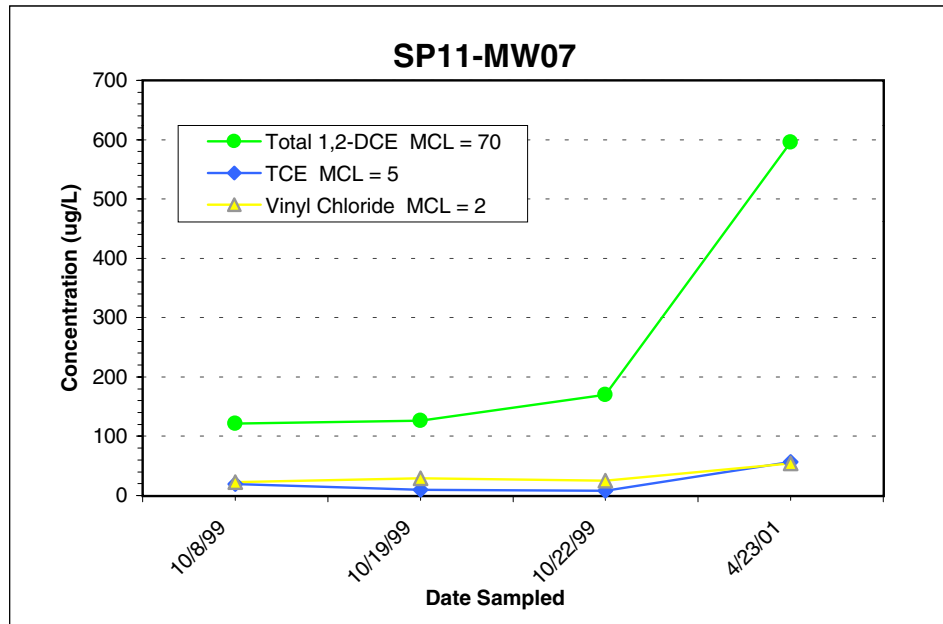
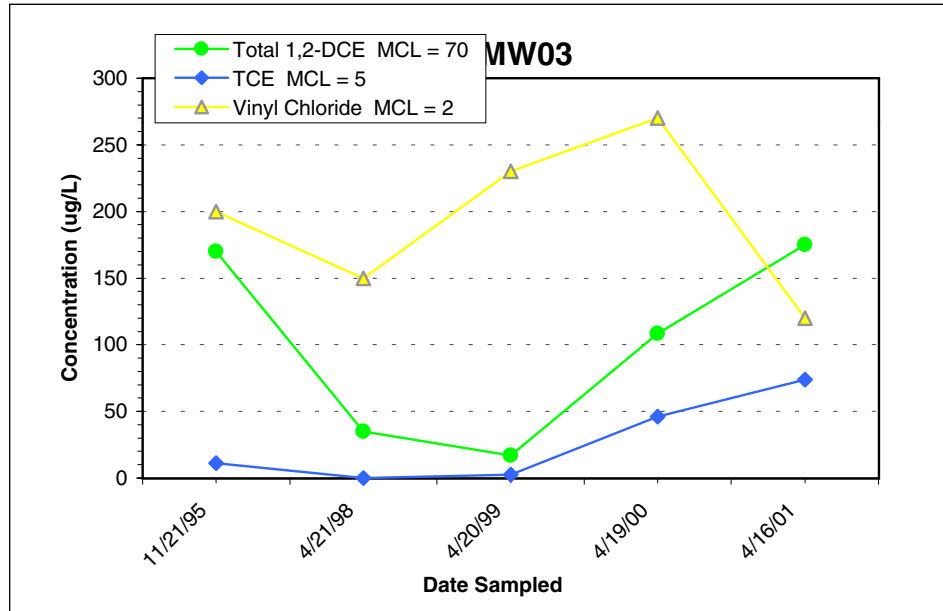
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: OU10**  
WPAFB - LTM Program



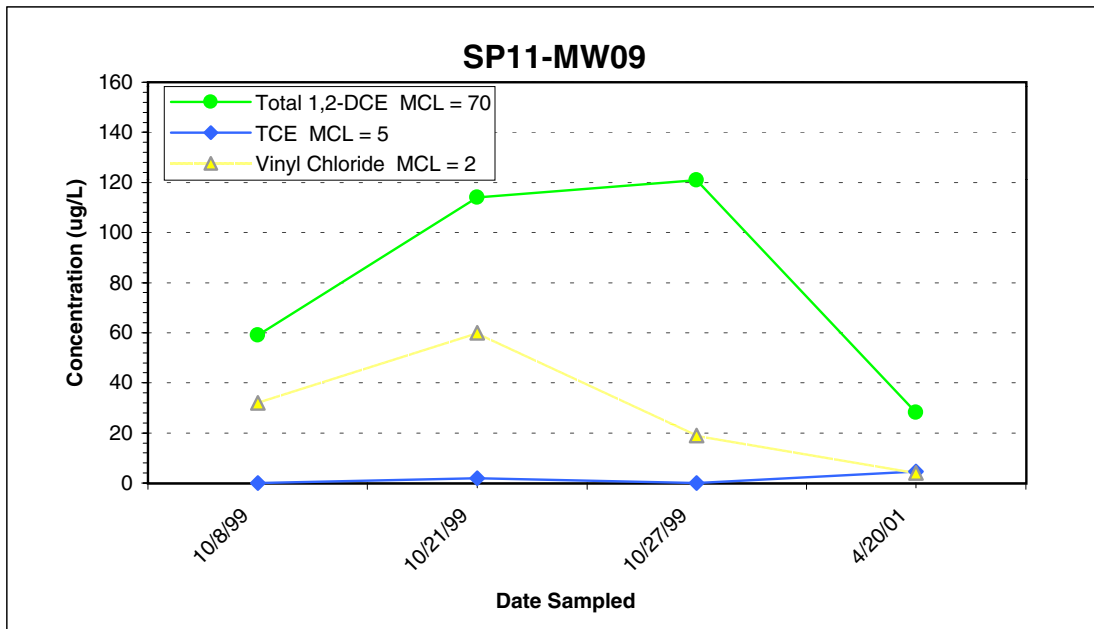
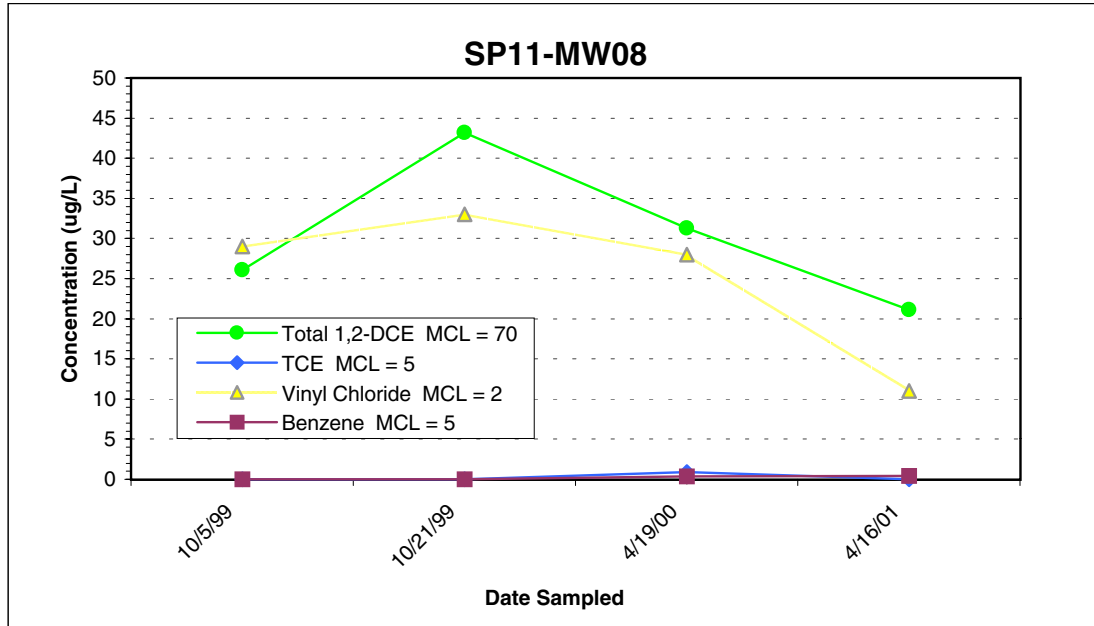
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: FAA-B**  
**WPAFB - LTM Program**



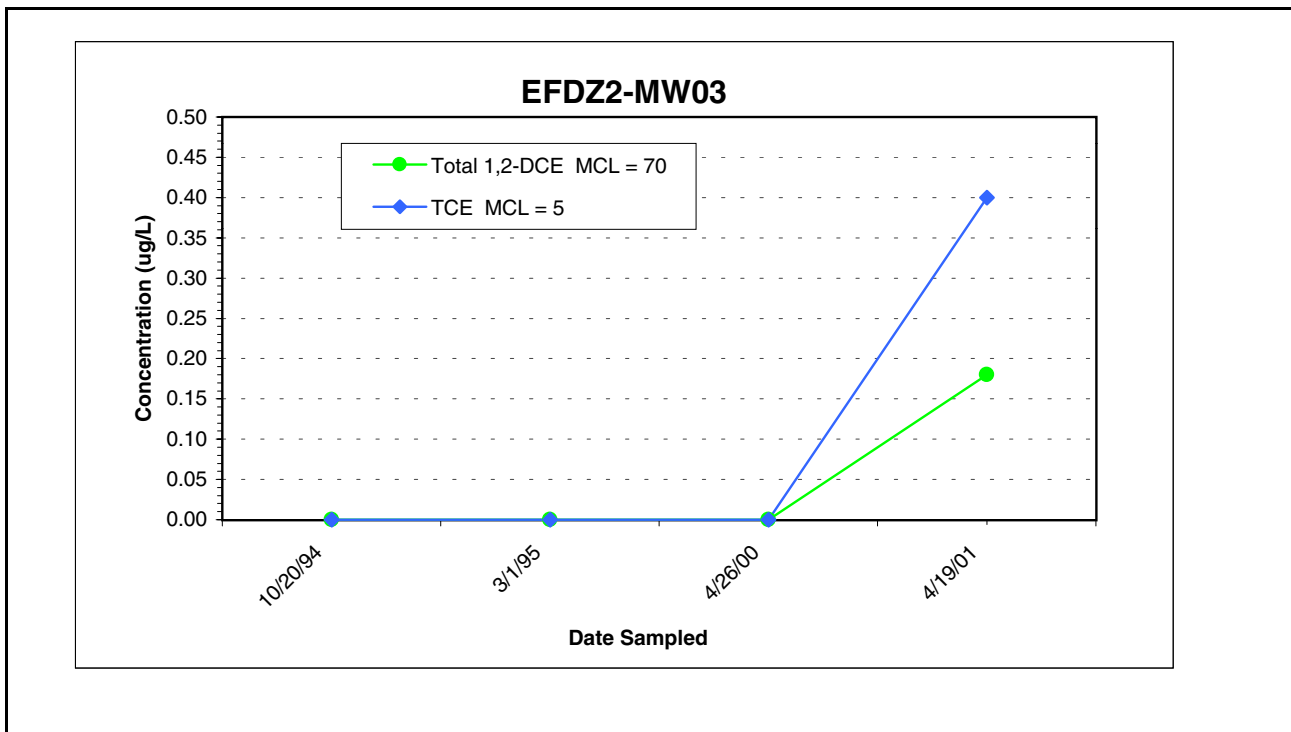
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: FAA-B**  
WPAFB - LTM Program



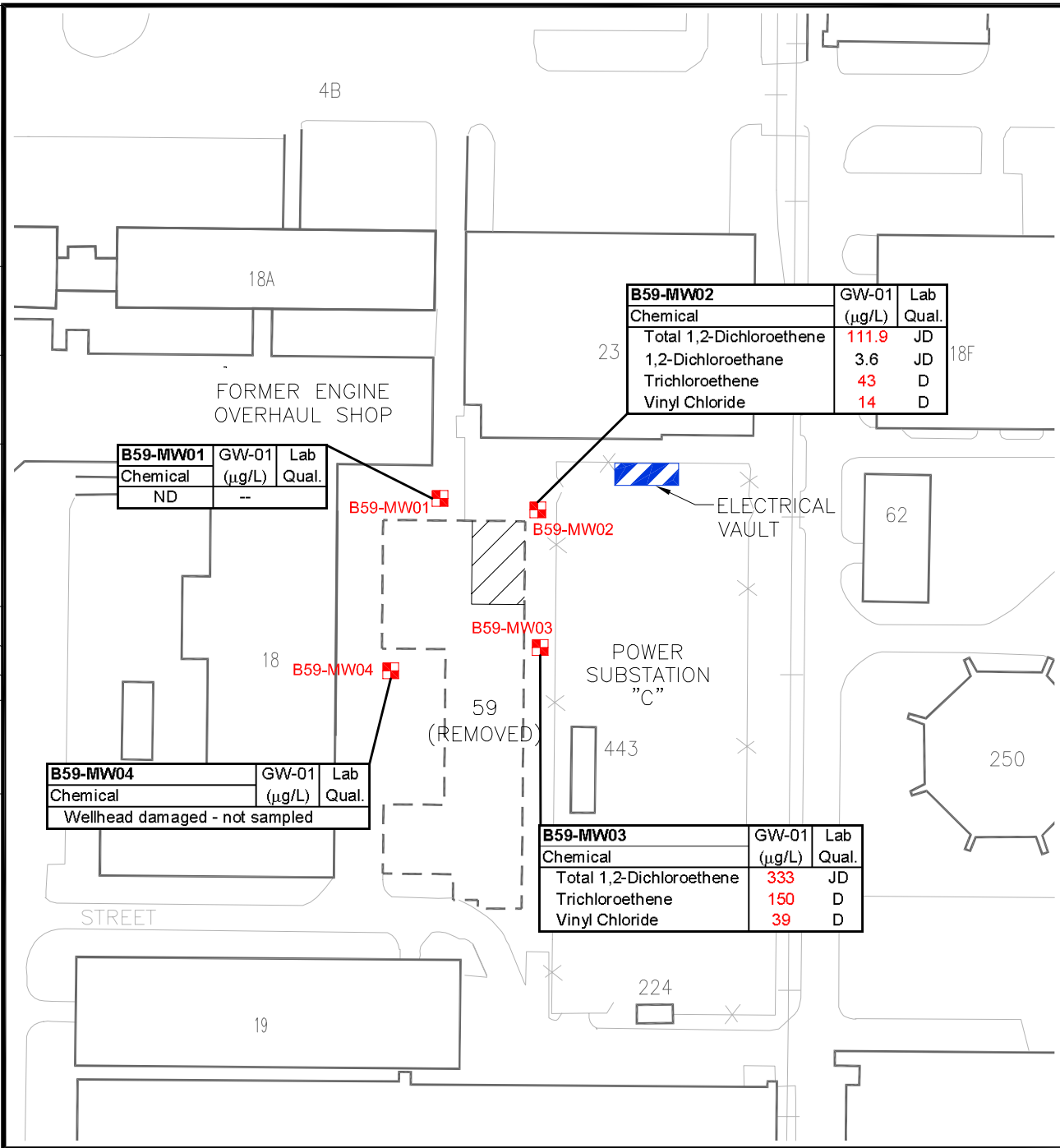
**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: FAA-B**  
**WPAFB - LTM Program**



**LONG-TERM MONITORING GRAPHS:**  
**Chemicals of Primary Concern**  
**Area: FAA-B**  
**WPAFB - LTM Program**

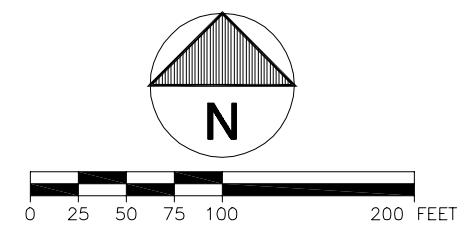


DRAWN BY MSN 7/31/01  
 CHECKED BY MC 8/7/01  
 APPROVED BY GP  
 DRAWING 2001 15-53.DWG  
 NUMBER



**LEGEND:**

- MONITORING WELL LOCATION
- ND - NOT DETECTED



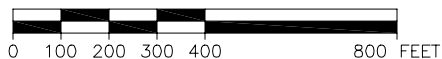
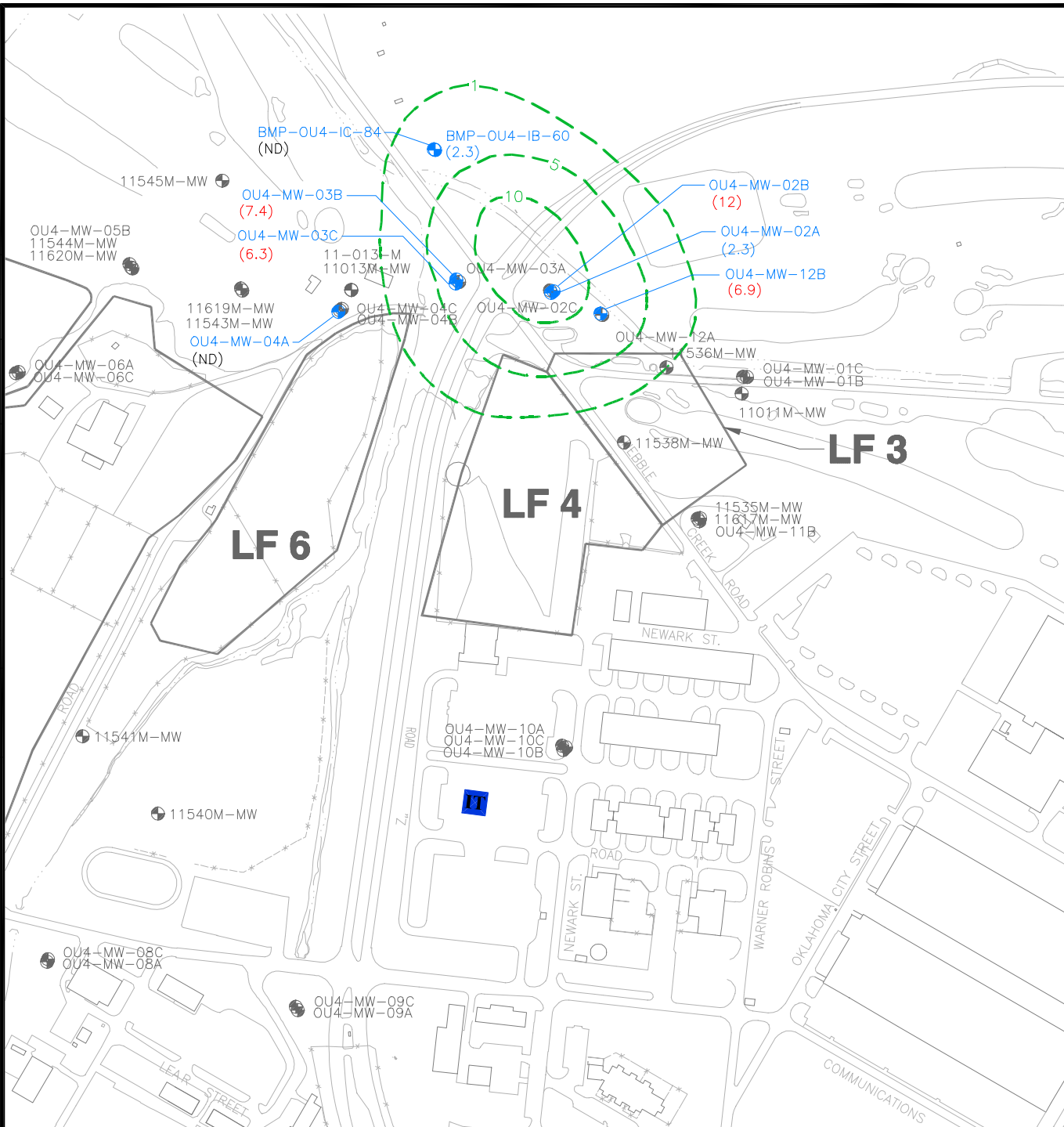
**Figure 6-58**  
**Building 59**  
**Groundwater Concentrations**  
**Of VOCs: April 2001**

prepared for  
**Wright-Patterson Air Force Base**  
**Dayton, Ohio**



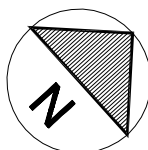
IT CORPORATION  
 11499 CHESTER ROAD  
 CINCINNATI, OHIO 45246

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	7/3/01	APPROVED BY	GP	7/9/01		



#### LEGEND

- MONITORING WELLS WITH VOCs ANALYSIS
- IRP SITES (LOCATIONS APPROXIMATE)
- TCE CONCENTRATION ISOPLETH (ppb) (DASHED WHERE INFERRED)
- (2.3) TCE GROUNDWATER CONCENTRATIONS (ppb) [RED=>MCL]
- (ND) NOT DETECTED



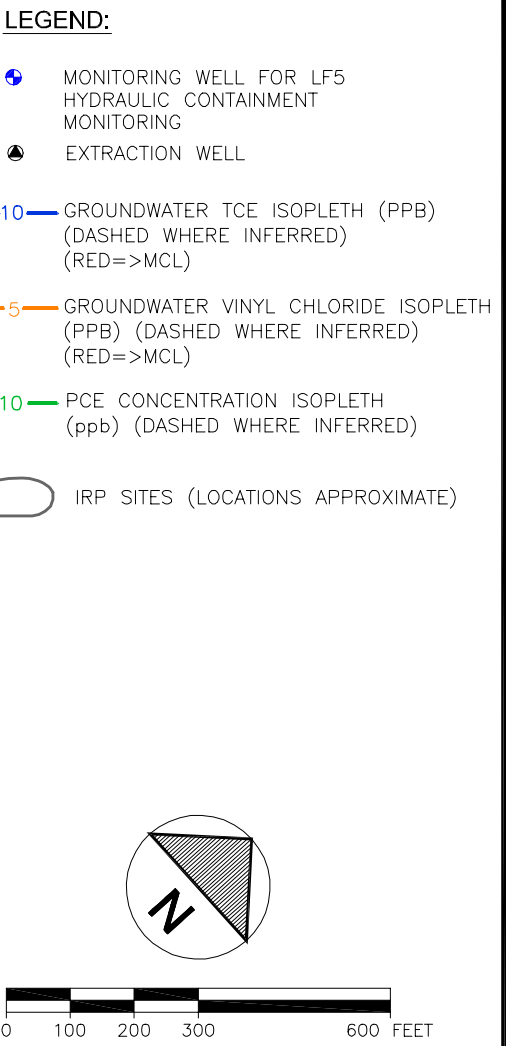
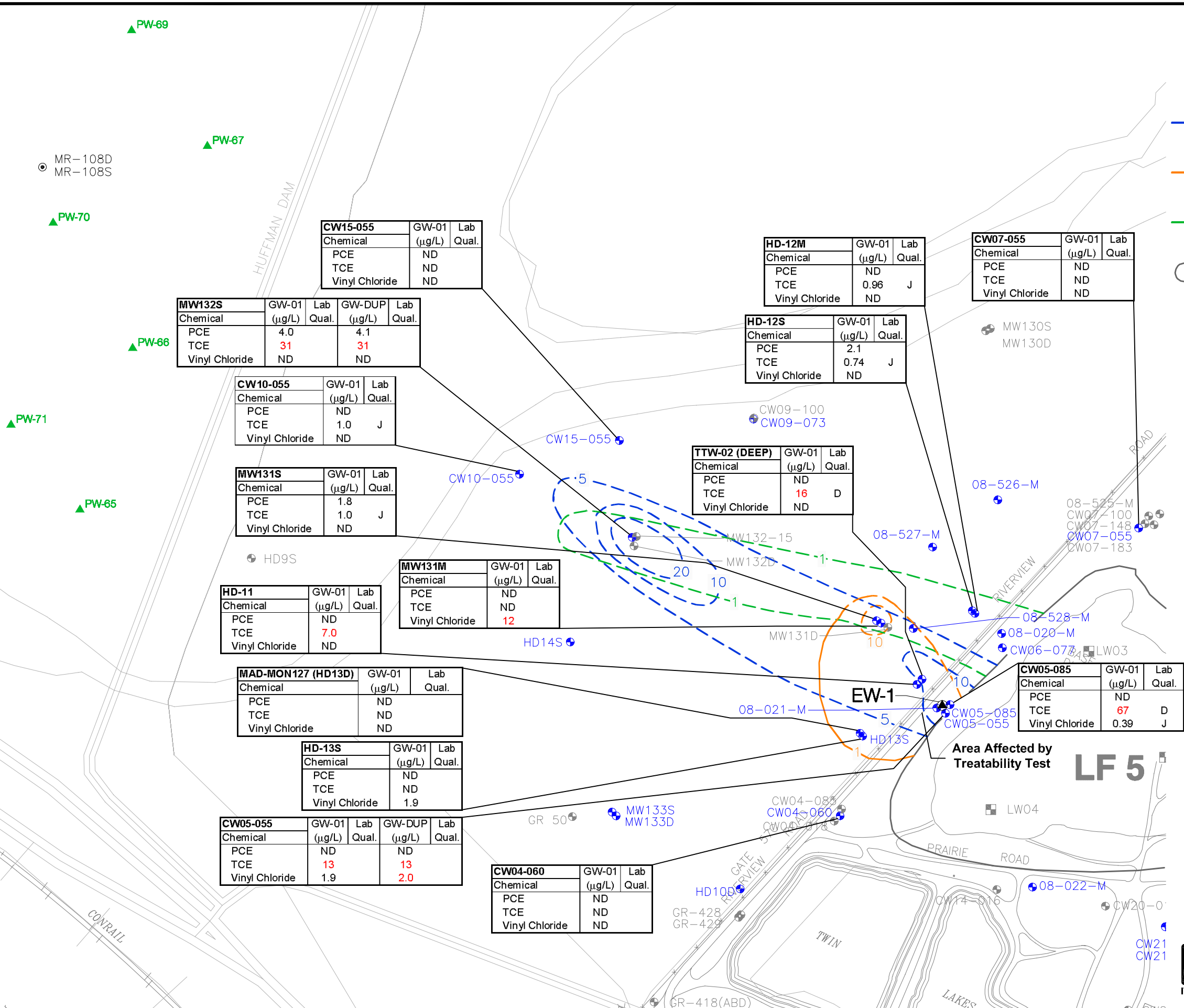
**Figure 7-1**  
**OU4 TCE Groundwater Concentrations**  
**Isopleth Map:**  
**April 2001**

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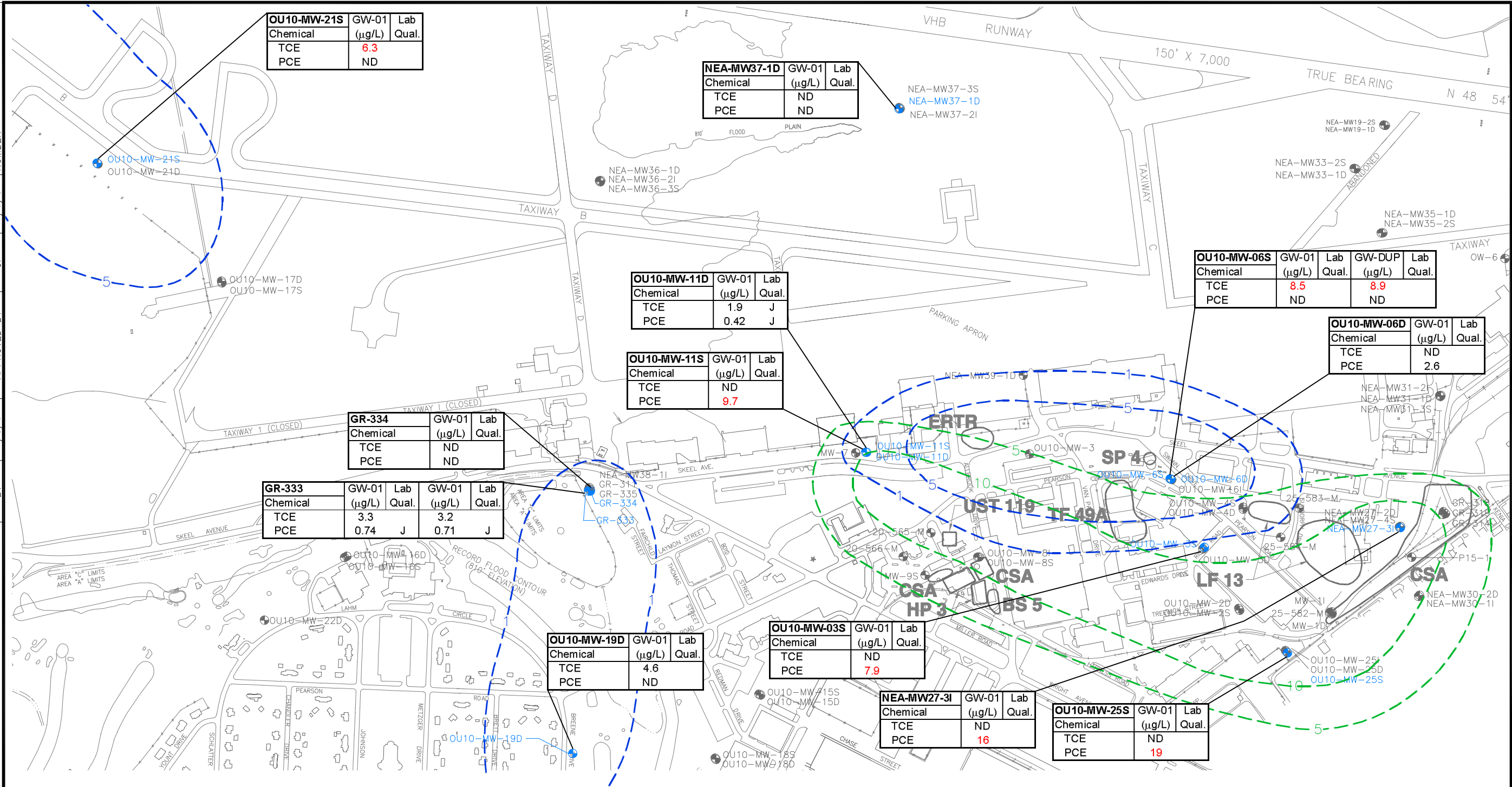


Figure 7-3

OU10 PCE and TCE Groundwater  
Isopleth Map:  
April 2001

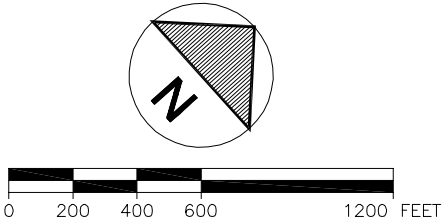
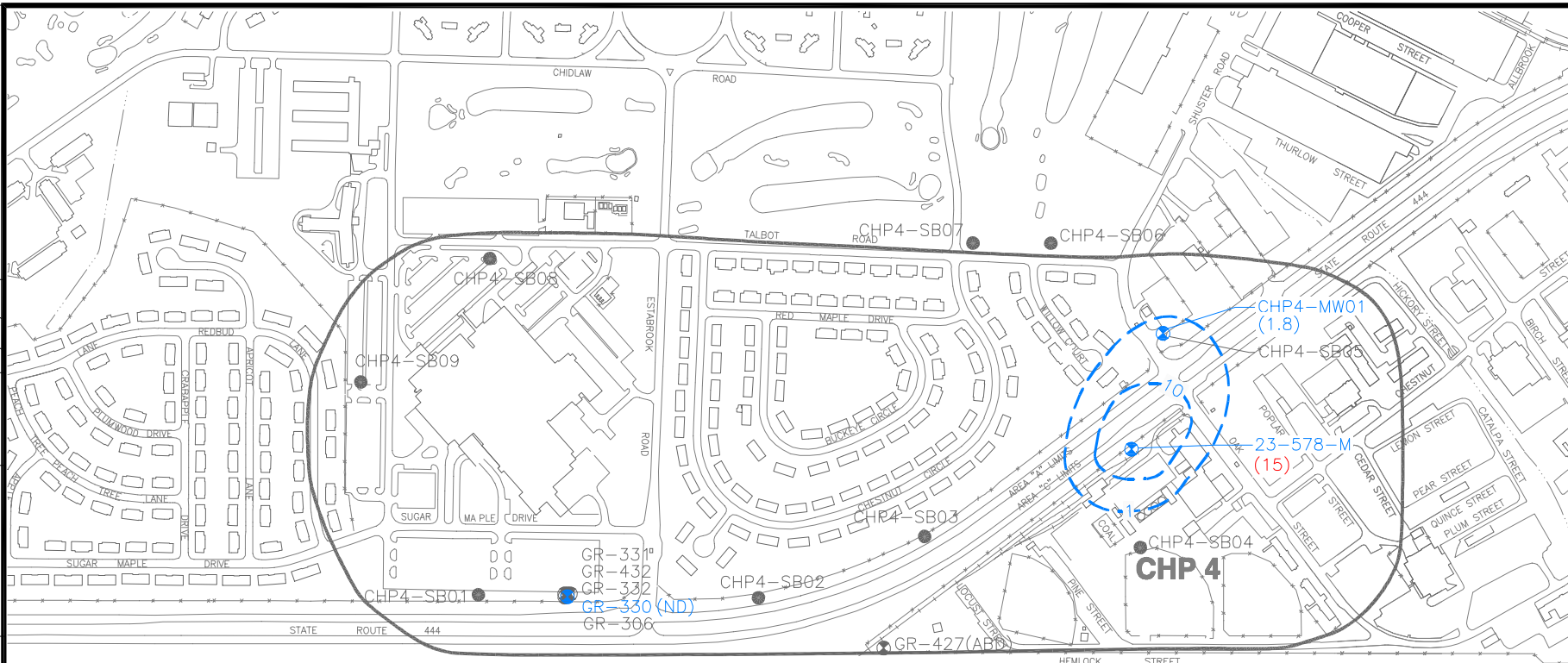
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**LEGEND**

- MONITORING WELLS WITH VOCs ANALYSIS
- IRP SITES (LOCATIONS APPROXIMATE)
- (1.8) TCE GROUNDWATER CONCENTRATION (ppb) [RED=>MCL]
- 10- TCE CONCENTRATION ISOPLETH (ppb) (DASHED WHERE INFERRED)

**Figure 7-4**

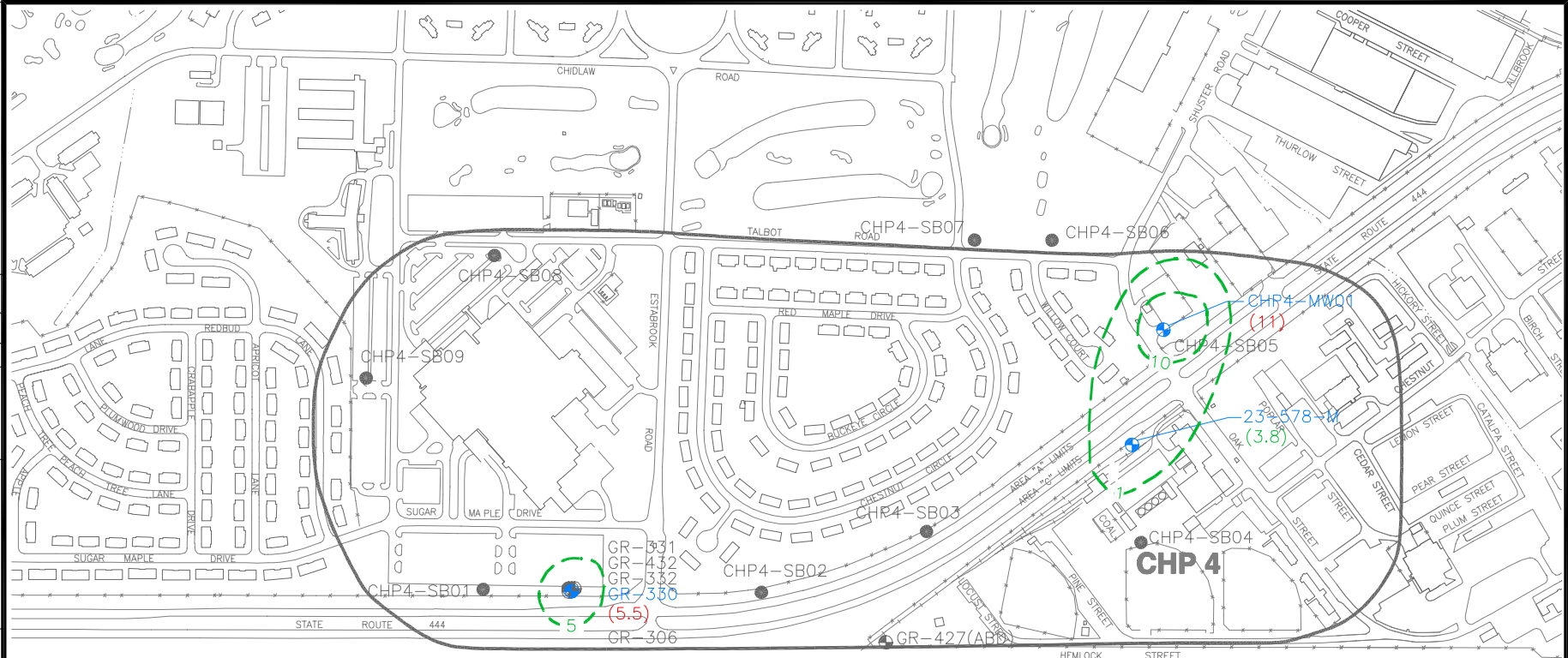
**Central Heating Plant 4 / OU10  
TCE Isopleth Maps:  
April 2001**

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**Figure 7-5**

**Central Heating Plant 4 / OU10  
PCE Isopleth Maps:  
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**LEGEND**

- MONITORING WELLS WITH VOCs ANALYSIS
- IRP SITES (LOCATIONS APPROXIMATE)
- (3.8) PCE GROUNDWATER CONCENTRATION (ppb)  
[RED=>MCL]
- 10— PCE CONCENTRATION ISOPLETH (ppb)  
(DASHED WHERE INFERRED)

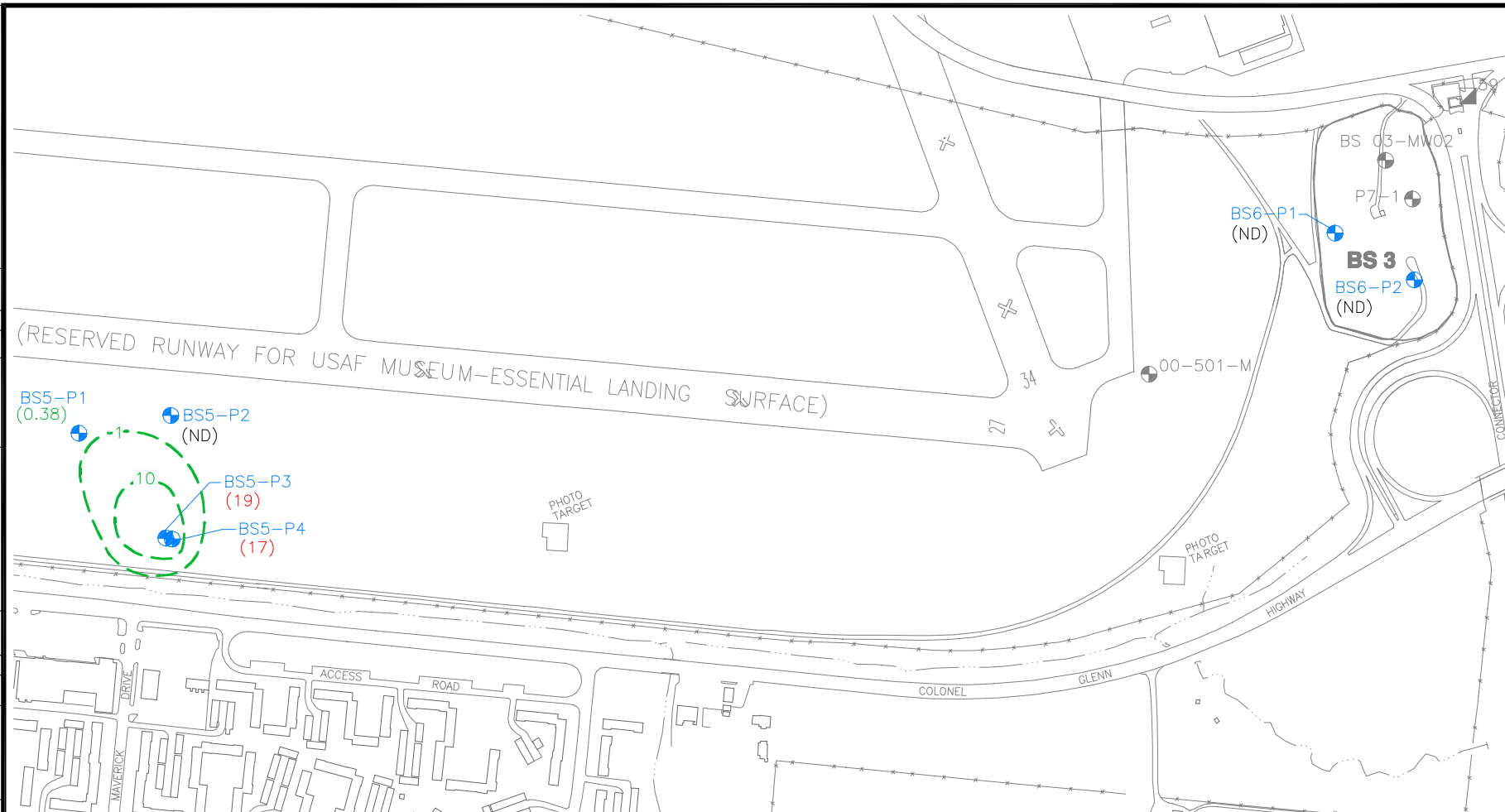
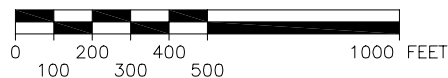
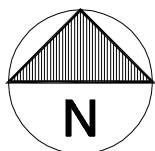


Figure 7-6

**LEGEND:**

- EXISTING MONITORING WELLS WITH VOCs ANALYSIS
- (ND) NOT DETECTED
- (19) PCE GROUNDWATER CONCENTRATION (mg/L) (ppb) [RED=>MCL]
- 20 PCE CONCENTRATION ISOPLETH (mg/L) (ppb) (DASHED WHERE INFERRED)



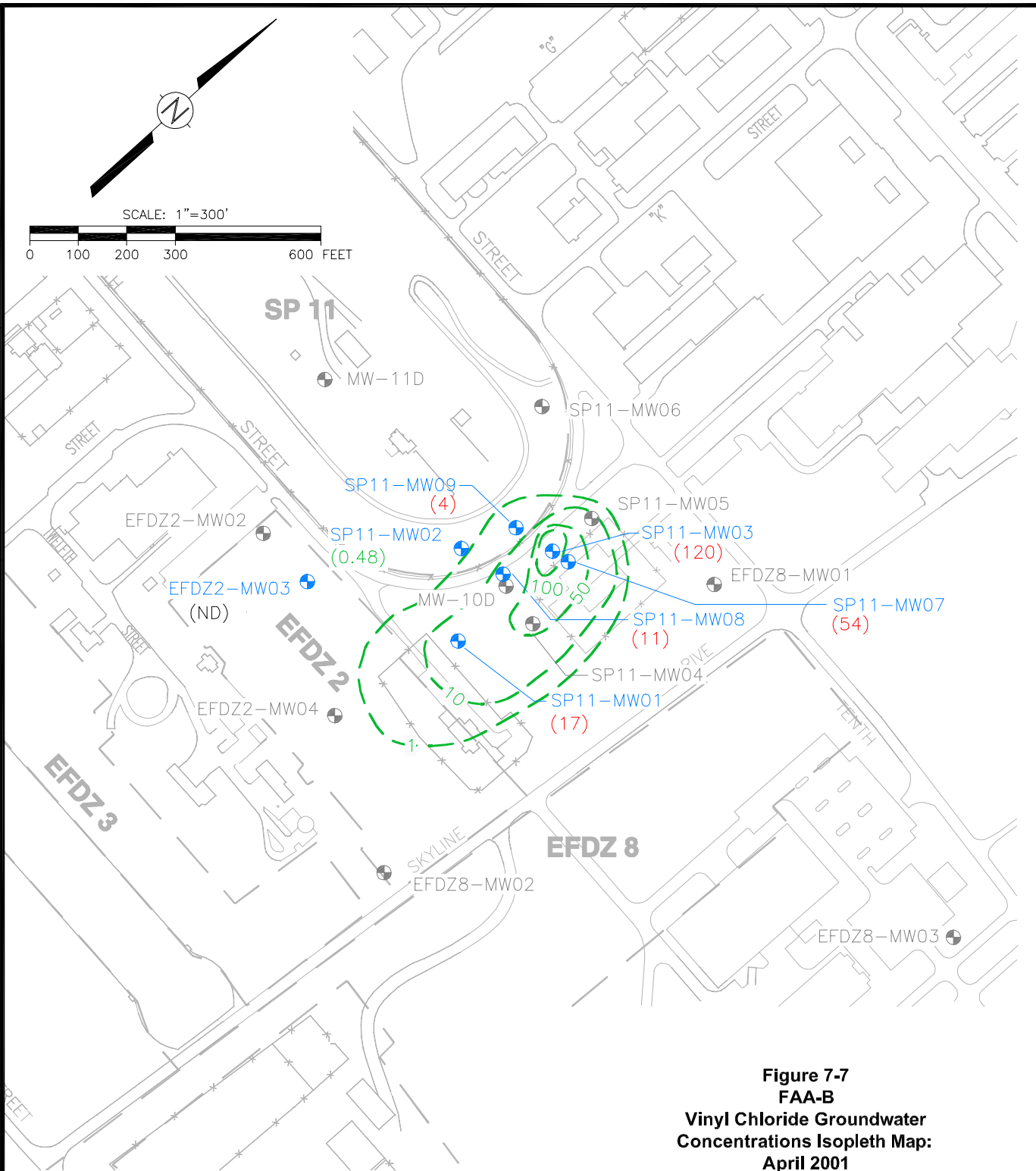
**Burial Sites 5 and 6  
PCE Groundwater Concentration  
Isopleth Map:  
April 2001**

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	7/3/01	APPROVED BY	GP	7/18/01		



**Figure 7-7**  
**FAA-B**  
**Vinyl Chloride Groundwater**  
**Concentrations Isopleth Map:**  
**April 2001**

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**Dayton, Ohio**



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**CORPORATION**

**LEGEND:**

- EXISTING MONITORING WELLS WITH VOCs ANALYSIS
- (17) VINYL CHLORIDE GROUNDWATER CONCENTRATIONS (PPB) [RED=>MCL]
- 20 VINYL CHLORIDE CONCENTRATION ISOPLETH (PPB) (DASHED WHERE INFERRED)
- (ND) NOT DETECTED